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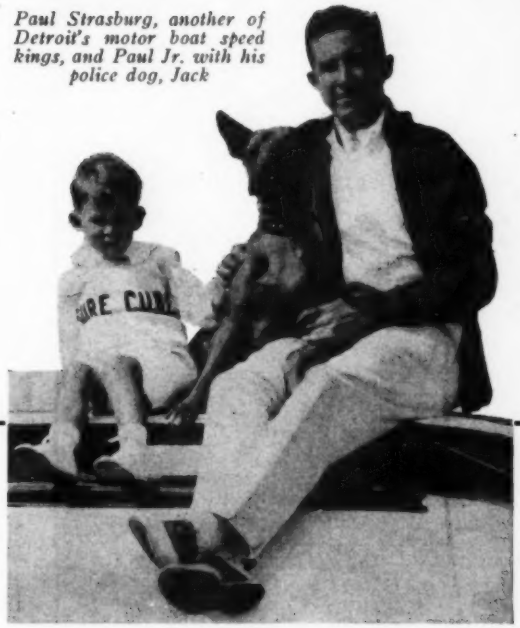

Paul Strasburg, another of Detroit's motor boat speed kings, and Paul Jr. with his police dog, Jack

MEET Paul Stephen Strasburg, Jr., 4 years old, the youngest speed demon in the city of speed—Detroit.

He drives an automobile at the rate of 50 miles an hour, a speed boat at 55, and an airplane at 90.

Not content with this, he awaits a speed boat capable of 75 miles an hour and an airplane that will do 120.

The yearning for speed comes honestly to Paul, for his father, Paul Stephen Strasburg, Sr., prominent Detroit sportsman. is almost equally at home on land, water and air.

Strasburg, Sr., is giving a thorough training in all types of speed to his young son, who is known fraternally as Steve among local gentlemen sportsmen.

The child probably will be proficient before he masters the three Rs.

Steve's legs are too short to give him complete mastery of an automobile, but he likes to take the wheel of his father's racer after it has been placed in gear. He can't reach the accelerator so he adjusts the gas by hand.

He is very much at home, however, when driving his father's big speed boat, Sure Cure, the fastest legitimate displacement runabout in America. It is capable of 55 miles an hour.

He swerves the boat accurately in and out among Detroit River craft and grunts impatiently when it is necessary to throttle down. He enjoys passing at top speed under the Belle Isle bridge.

Sure Cure is the third of Mr. Strasburg's speed boats. Under construction is Baby Cure, a plane type boat designed by John L. Hacker, expected to do 75 miles an hour. This will be Steve's personal boat.

After Baby Cure Mr. Strasburg expects to build Kill or Cure, for possible entry in the Harmsworth trophy event.

Steve is an aviator, too. He thinks it is great to soar through the clouds, high above the city and the water he loves, and then to come skimming to rest on the river.

On all the youngster's trips goes Jack, a Belgian police dog less than a year old. Jack is larger than his master, and frequently unwittingly knocks the boy down in demonstrating affection.

Swimming and fishing are other diversions enjoyed by the diminutive sportsman. He is now being taught the Australian crawl by his father, who last year won the Bruce Anderson trophy emblematic of the Detroit Athletic Club diving championship.

"I am teaching the kid to be a good loser," says the father. "If anyone defeats him I have taught him to say, 'Congratulations; that's fine.' When I beat him at pitching horseshoes he pulls a long face, but he always congratulates me.

"But when I complete his training I hope he will not find it necessary to accept defeat often. I'm going to make a winner of him."

It would seem the father has made a lot of progress.

GREAT LAKES CRUISERS

THE whole trend of the times is towards a one-man-controlled express cruiser which is seaworthy and safe, and which offers comfortable accommodations for a party of six or eight and a crew of two, and which has a turn of speed of over 20 miles an hour. The 54-foot Standardized Express Cruiser reflects all of these characteristics in maximum degree. More than that, there is a perfect sense of proportion in the distribution of the space as between cabins, bridge deck and cockpit.

The hull is so sturdily built that any waters can be navigated in any kind of weather. The twin screw power plants assure excellent maneuvering qualities, together with absolute dependability. The speed of over 20 miles an hour is the result of advanced design.

You will be interested in obtaining complete information covering the 54-foot Standardized Express Cruiser.

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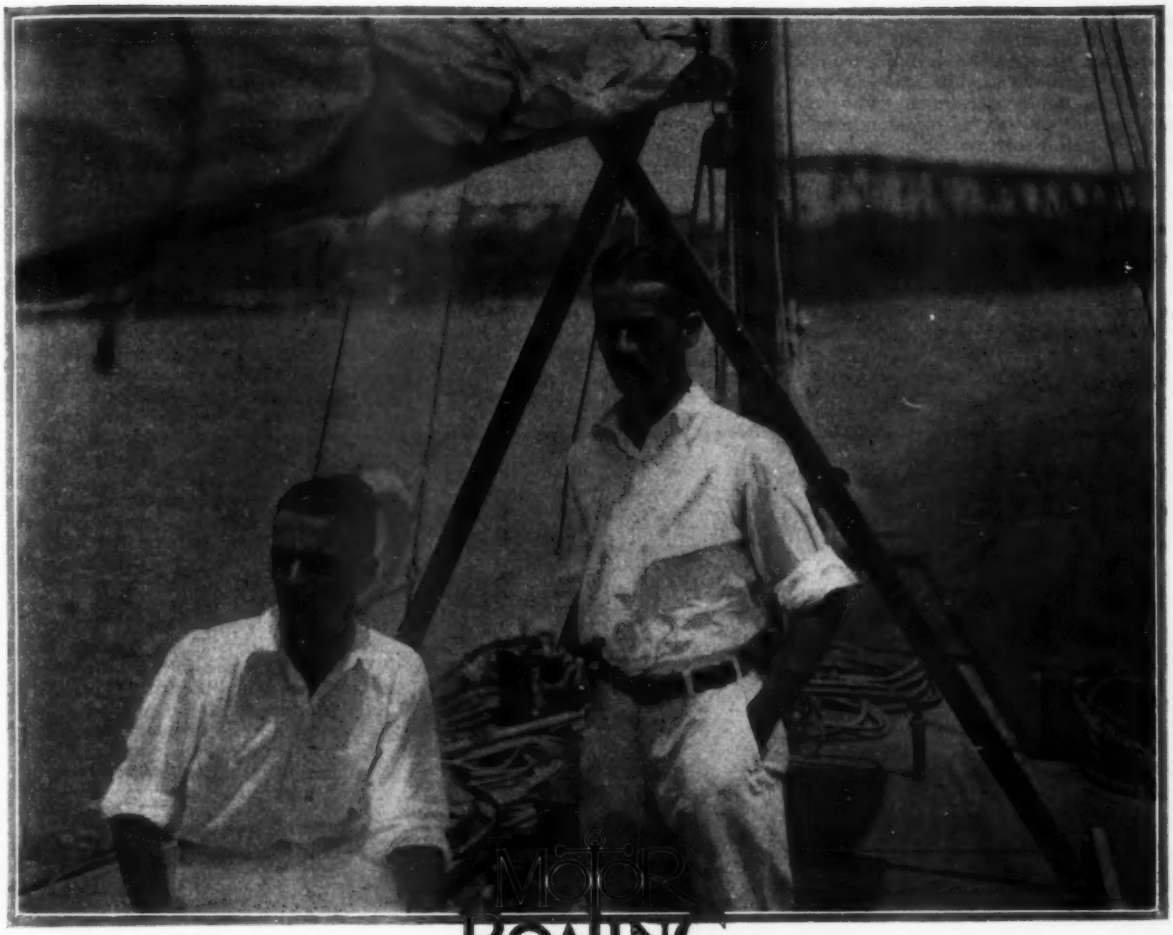
Great Lakes Boat Building Corporation

Milwaukee, Wisconsin

Largest Builders of Express Cruisers in America

Advertising Index will be found on page 110



Squibb and Chambers in liberty whites, ready to hit the beach at Thunderbolt

Misfortune Overtakes Hippocampus

The 28-Foot Auxiliary Yawl Finds That Marine Risks Do Not All Occur at Sea—Undismayed She Continues Her Voyage to the Pacific

By Alfred F. Loomis

Photographs by author and crew

IF a cruise in a yawl were all plain sailing there would be little to chronicle but the state of the sea and the color of the clouds at sunrise. Running free before a breeze which obligingly shifted with the outline of the coast she would diminish her latitude like a coastwise steamer, her log so barren of entry that her skipper would have to draw on his imagination for publishable material.

Luckily, the Fates have provided that in the Odyssey of the 28-foot auxiliary yawl Hippocampus, impudently bound for San Francisco from New York, there shall be no mention of halcyon days, hardly any record of fair winds, and almost a superfluity of unorthodox adventures. Yet, after a month of cruising, no fatal accident has befallen. In a retrospect of what did occur on a night at Mayport, Fla., this seems a shade unusual.

Much more in accordance with our expectation was the contrary slant of wind which greeted us, as, ten days in advance of the cataclysmic occurrence hereinafter to be described, we nosed our way between the jetties at Charleston and set sail for a run to Savannah. Between entrances it is a distance that Gar Junior or another of the moderns would do in two hours, and the weather was of the sort that would delight the paddler of a 13-foot canoe. But Hippo, indifferent to meteorological conditions, pointed her bowsprit as close as she could to a vagrant breath from the southwest, and in two hours was still visible from the entrance buoys. Twelve hours later,

"One of the most entertaining adventure stories of the times" is the way these special articles by Alfred F. Loomis have been described. The narrative of the successive stages in this remarkable cruise from New York to San Francisco in the 28-foot yawl Hippocampus appears each month in MoToR BoatinG and all readers should follow the story closely. The adventures encountered are many and varied, and the story is being written for MoToR BoatinG in Mr. Loomis' inimitable way. The present installment takes them well along on their way to Havana where it is still possible to splice the main brace.—Editor.

a half day of calms, spasmodic breezes, and rolled up banks of cumulus that merely threatened sudden squalls of wind, we dropped the 18-mile beam of Charleston Light and called it our day of least accomplishment. Midnight found us totally becalmed, with the range lights of an approaching passenger steamer bearing directly down on us. A well-directed flash of our newly acquired Grether light called us to his attention and we had the satisfaction of seeing him alter course to pass around us.

On the next day, May 27, we fared but little better in point of mileage until midafternoon. Sights taken in the morning and at noon with the Brandis sextant gave me a fix that was ten miles northeastward of our dead reckoning position, and I gained a new idea of the leeway which a small boat will make tacking against light airs. We were becoming almost reconciled to picking up Charleston Lightvessel astern of us when at 3:45 a moderate breeze sprang up from the northeast and we squared away for Martin's Industry Lightvessel. We picked it up at dusk,

A council of war on Pablo Beach, Squibb, Loomis and W. B. Donahue

our usual hour for making such landfalls, and, the wind becoming gusty, shortened sail and scudded for Tybee lighted buoy, at the entrance to the Savannah River. Showers of rain came with the wind and blasted our hopes of completing a run between ports without donning oilers.

At midnight, when we started the motor and picked up the first range of Tybee Roads, I embarked upon an experience that was as new as it was interesting—that of entering a strange harbor without adequate charts. In New York, when I made up my portfolio, Savannah was so far away that a difference in date of ten years did not seem vital, and I included a few charts that had been used on a previous cruise. But when we were in the Roads and I saw that almost every range and other navigational light in the vicinity had been changed within the decade I regarded the matter differently. However, I took my data from the Light List, and, cheered if not exactly aided by a moon which shone through the clouds and illuminated port-hand buoys on our quarter, the little Hippo worked up above Quarantine and came to anchor to await a fair tide.

The turn came at 8 a. m., and under the heat of a sultry sun we started up the Savannah River, experiencing for the first time on this cruise the sensation of stepping on red-hot decks with bare feet. The motor kicked us along busily to within three miles of Savannah, where we turned and followed the inside route to Thunderbolt, since, as everyone knows who has cruised south, Savannah is a city of waterfront smells and high docks.

But this Georgian city is also a place of delightful hospitality and delicious "rebel" tendencies, and we were the pampered guests of men who had served in our late difficulty with Germany as well as of those who had fought in the war. Squibb chased the ball around a links whose bunkers are fashioned from Civil War breastworks, and at one home we were invited to inspect round shot fired from Federal guns which had rusted in the soil for fifty years after they had missed their objective. At a dinner party—and this again reminded us of the bad old days—we made the acquaintance of Mr. Tom Collins, and, listening to the clink of ice in the glasses, rejoiced that Savannah is still a rebel city.

We had been at anchor some hours in Thunderbolt when the owner of a V-bottom speed boat came alongside and asked me (the crew having hit the beach in liberty whites) if I would like to explore with him the route which we would take on leaving. Inasmuch as my chart of Wassaw Sound, which lies to westward of Tybee Roads, was also superannuated, and since the day, Saturday, was to be followed not only by Sunday but by Decoration Day and then Jeff Davis's birthday, when all loyal storekeepers shut up shop, I accepted his offer with much thanks. We shot down the Wilmington River and in but little over an hour were arrived at the inlet where by observation and by instruction I learned the lay of the land.

Since my host of this occasion, who is a thorough-going but inland boatman, asked for information on points which to the crew of Hippocampus seemed

The skipper uncrates the Skaneateles dink at Jacksonville

self-evident, perhaps it will be well if I here interpolate a short catechism for the edification of readers.

Q. "Did you come down inside?"

A. "No; we draw too much water to make inside running enjoyable, and we have made the whole distance outside, including the fearsome trip around Hatteras."

Q. "When you are outside, do you anchor at night?"

A. "No; when dependent upon sail one cannot rely on making harbors at dusk, and we run all night, standing regular ship's watches."

Q. "Is it pretty dark out there at night, or do you use a searchlight?"

This is a difficult question to answer in tabloid form. We do not use a searchlight, because at times there is nothing to see but waves, and given the opportunity they will come aboard for close inspection. It is dark on overcast nights except when lightning illuminates the horizon for brief

intervals; but on moonlit nights the sea is a huge cup of molten silver in which we float with the serenity of a gull and the buoyancy of a Portuguese man-o'-war. Porpoises dive torpedo-like beneath our hull, leaving a wake of phosphorescence, and at a distance other great fish leap up and fall to the surface in a shower of pearls. Lighthouses cast their benignant radiance upon us and once in a great while a stately steamer, catching the red and green beams of our running lights, alters course to avoid us. Night follows day with even regularity, and is cut from pretty much the same cloth.

A change is welcome, however, and doubly so when it comprises such a swimming party as we had at the home of Ambrose Gordon, at Beaulieu, Ga. There on Sunday afternoon we exhibited our sunburn (which in the South is always the mark of the Northerner) and executed inept dives from a lofty spring board. In the cool of the evening we returned aboard and prepared with sleep for a day at the Savannah Country Club as the guests of Squibb's boyhood friend, Murray Stewart.

By Tuesday morning the sea fever was upon us again, and we weighed anchor and stood down the Wilmington River to Wassaw Sound, passing through the inlet and leaving on either hand snow-white beaches where ancient sea turtles land and lay hundreds of eggs in order that Georgians may know the gastronomic possibilities of guttapercha.

Once clear of the sea buoy off Wassaw we stopped the motor and hoisted sail, taking full advantage of a moderate breeze that had come up overnight from the northeast. All that day we ran free, now with the sheets to port and again after a carefully executed jibe, with them to starboard, and by nightfall we were abreast of Brunswick Lightvessel. With darkness came a material increase in the strength of the wind, and by midnight it was blowing briskly enough to log us six knots under "forestaysail and spanker"—as our jib and jigger have been termed in southern waters.

At three-thirty of the next morning—June 1st—we rounded St. Johns lighted buoy and made for the entrance between the jetties. Again the dead of night found us entering a strange harbor with an antiquated chart, for our efforts to procure a new one of St. Johns River had been unsuccessful. But this occasion was not the moonlit excursion that we had staged at Tybee Roads. All night the wind had blown more briskly until at that hour it had developed into a full-fledged northeaster—one which was to continue, by the way, for ten whole days before the doldrums got the better of it—and to add to the merriment the tide was at its maximum flood and sweeping terrifically across the mouth of the river.

In studying the coast pilot to acquire information which our chart could not give me, I learned that if a vessel become unmanageable here in a northerly wind and a flood tide she is almost certain to be a total loss on one of the jetties. This added zest to the early morning hours and gave point to a sudden call from Chambers, clinging to the mainmast and peering into the darkness.

The skipper keeps his eye on the compass card

"Jetty dead ahead."

Strangely enough I was not alarmed. We were running under power with only the jigger set to steady us in the sea that was boiling in toward the jetties, and for some minutes I had been holding Hippocampus on the first set of range lights. But to do so against the current I had been obliged to head four points to northward of the course. Hence it was that we seemed to be making for the north jetty and hence my reply to Chambers' call—"We couldn't hit that one if we tried. Do you see the south jetty?"

In another minute the strain on the helm was eased, and although my eyes were held as by self-hypnosis on the white lights of the range I knew that we had passed between the converging jetties and would soon be in quiet water. A few minutes later my assurance was entirely dissipated when I failed to distinguish a crossover range from a dozen winkling lights and nearly piled up on the south jetty; but after describing two full circles (the mizzen flapping until Paul jumped to the halliards and doused it) I got my bearings again and we continued to be guided by the abbreviated instructions in the Light List. Daylight overtook us abreast of Mayport, and we carried the flood to Jacksonville, jib and jigger once more set to assist our little Palmer engine. Arriving there at 8 a. m. we secured after a run which, though twice the distance from Charleston to Savannah, had been accomplished in less than half the time.

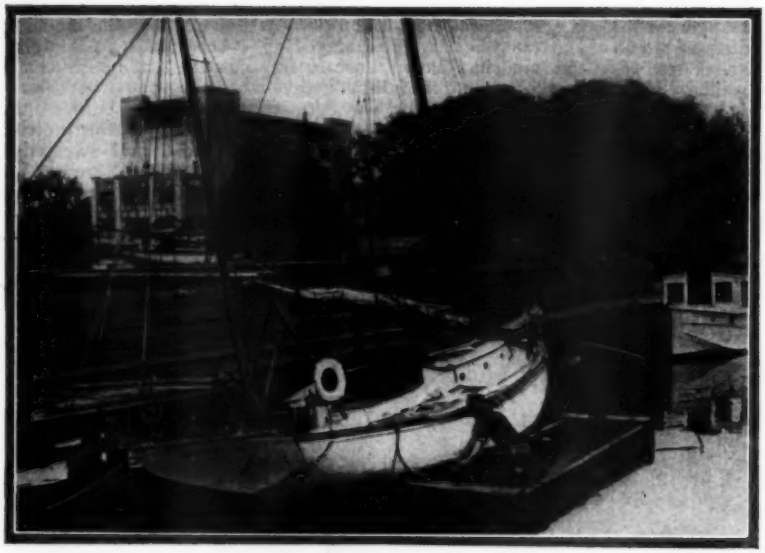
We secured, as I say, and sent out a broadcast for Watson B. Donahue. Donnie was my first skipper aboard the U. S. S. C. 131, as trim a chaser as sailed the seven

COMING TO CUBA IN 28 FOOT BOAT

"Hippocampus" Journeying From Hell Gate, N. Y. to Golden Gate.

In a cruise from the Atlantic to the Pacific, the 28-foot "Hippocampus," a small seagoing yawl, came into Miami waters last Monday says the Miami Herald The boat boasts a ruggedness and honesty in which any yachtsmen must glory, and her owner, Alfred F.

Clipping from the Havana Post indicates the reception along the route



Repairs were made from a float placed alongside

seas, and I've liked him ever since I stepped aboard his ship. I remember that I asked him with the ardor of a new exec if he wanted me to turn out early the following morning to put the crew to work, and he answered:

"Sleep until noon if you wish. The work aboard this packet does itself."

How could I help liking such a commanding officer? The crew did too, and when he left us with the flu at Gibraltar they gave him a silver loving cup. That was at a time when mighty few commanding officers of subchasers were receiving tokens of affection from their crews, and he values it almost as much as he does his Navy Cross.

But this is ancient history. Donnie picked up the broadcast and it wasn't many hours before we were bowling over the brick highway to Pablo Beach. As it was Shriners' Week in Jax the beach belonged to the red-fezzed gentry, but we visitors were able to dash into the surf occasionaly without interfering with the action of the moving picture cameras. The northeaster blew with undiminished vigor and it was with mingled feelings that we viewed the whitecaps tumbling over each other as far as the eye could reach. As a change it was pleasant to be on the shoreward side of the line of breakers, but it was somewhat tantalizing to be marking time on dry land while a fair wind that would have blown us to Miami in short order was wasting itself on a deserted ocean.

On the beach at Pablo we asked Donnie to attend a little council of war in which our future itinerary was discussed. Until our arrival at Jacksonville we had been minded to strike off from the States at Miami, making Bimini the first and most important port, and from there working to Nassau and through the Tongue of the Ocean or Exuma Sound to the Windward Passage, and thence between Cuba and Haiti to Jamaica.

But just before our departure for the beach I had been studying charts and Coast Pilot with more care and had been brought face to face with the fact that the Bahama Banks are a hostile region for a sailboat with small power. Lighted aids to navigation are few, harbors are fewer, and the depths, unless wide detours be taken, are little better than a heavy dew. Moreover, there is little of interest along the route.

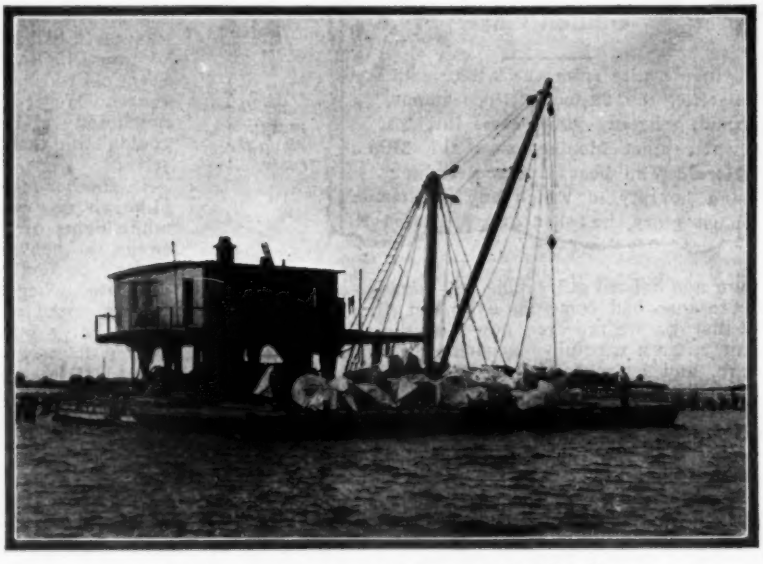
These facts being presented to Donnie, sitting in extraordinary session with the crew, it was unanimously voted that we omit the Bahamas from our itinerary and make Havana our first foreign port. From there it was decided that we shall carry the counter current along the Straits of Florida to Cape San Antonio at the northwestern end of Cuba, beat along the south shore of that island republic and from a convenient jumping off place make Jamaica, with Colon our next objective.

Had we known what was to happen to us at Mayport in the night of the second day following we could have spared ourselves immediate worry over ultimate adventures. On June 4th, with a liberal supply of peanut butter, jam, and the other necessities of a nomadic existence stowed beneath decks, we cast off from our berth along the Jacksonville waterfront and stood down the river. En route, Squibb, turning to in the galley with his accustomed vigor, cooked us up a chow that included among the vegetables a can of spinach.

All went well until at 7 p. m. we came to the very mouth of the jetties and saw an ominous-looking pile of clouds backing against the northeast wind. Perhaps, like the Roman army of olden times, we had dallied too long at Capua, enjoying the fruits of the land. Perhaps we misread the weather indications. In either event we put back to the town of Mayport and sought anchorage. Finding after two attempts that the holding ground was poor we weighed again and moored with our starboard side to a barge loaded with boulders for the jetties. Two hours later the sky cleared and the night was perfect for sailing south, but when it was suggested to the crew that we shove off with the turn of the tide at midnight, the little ptomaines which I believe are incipient in every can of spinach, registered a protest and we remained where we were.

I happen to have an old-fashioned horror of going adrift from a mooring at night, and so I stayed awake until the tide was well on the ebb and when in addition to our bow and stern breast lines and a spring, ran another spring to a niggerhead on the barge. Satisfied that nothing short of an earthquake would move us from our snug berth I took a look around—at the new barge to which we were moored, at a second barge lying upstream, at the floating derrick above that, and at the lashings of the dink secured

(*Continued on page 52*)

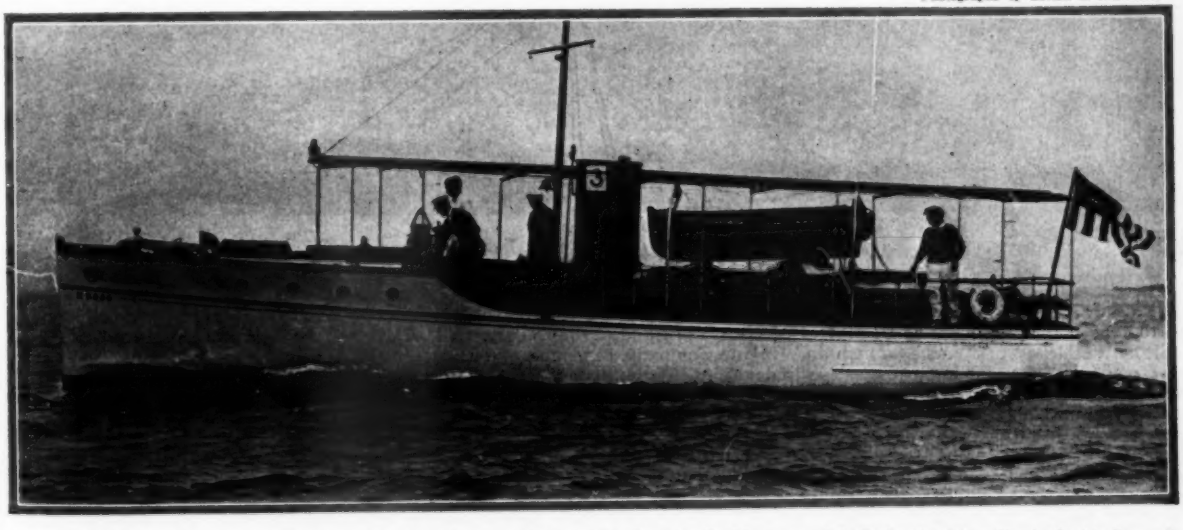


The barge and some of its cargo which delayed us

Crew of Spendthrift II, the boat which finished first by several hours. Left to right, C. D. Mower, designer, E. Cochrane, W. R. Halsey, owner, Turtle's observer and C. F. Chapman.

One Hundred Miles Through Fog to a Protest

Photographs by Levick & Rosenfeld



Spendthrift II first boat to reach Block Island. She was designed by Charles D. Mower and built by the New York Yacht, Launch and Engine Company. Her power is a four-cylinder Van Blerck which drives her along at a 12 mile an hour speed

THE annual race of the New York Athletic Club to Block Island started this year in a bank of fog and ended in a mass of wordy arguments. The race was advertised to be run under the 1921 rules of the American Power-Boat Association, but additional rules were handed to the contestants a few minutes before the start and because there was technical violation of one of these rules the boat which finished first was advised by the owner of the defeated boat, who is also chairman of the Race Committee, that he was disqualified even though the alleged violations had absolutely no effect upon the results of the race.

The race this year was run from the starting line off Huckleberry Island down the entire length of Long Island Sound through the Race or Plum Gut as individual choice or circumstances dictated and across Block Island Sound to the West Harbor at Block Island. The distance for this run is exactly 100 nautical or 115 statute miles. Under ordinary conditions the problems involved in navigating a boat over the course are relatively simple. The unusually heavy fog this year called for all the skill possessed by the various crews.

Twelve boats entered for this race, but on the morning of the race a thick fog enveloped Long Island Sound, consequently only eight boats showed up for the start. Of these eight only four reached the finish line.

The start was set for 1 P. M. Saturday, July 9. Spendthrift II was first over the line, closely followed by Turtle, owned by Thomas Farmer, Jr., chairman of the Race Committee of the New York Athletic Club. Spendthrift II immediately drew away from the entire field and was never headed during the entire 115 miles to Block Island.

Although fog was encountered for the entire distance and

Spendthrift and Turtle crossing the starting line. This was the nearest they actually came to fouling. Note the difference in the two boats trim. Turtle at the right is seen squatting and down by the stern while these characteristics are not apparent in Spendthrift II. This is an example of the fallacy of overpowering a hull. The hull of Turtle with 20 horsepower is very efficient but with twice the power it is not

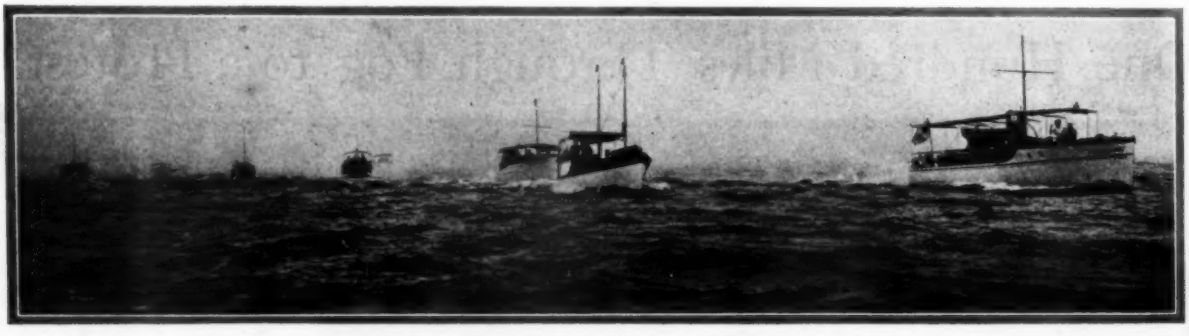
no land or other object was visible for nearly 100 miles, Spendthrift made the trip without incident and made an accurate course which took her to the narrow entrance of Block Island harbor.

to be a big factor in future racing events on the Sound besides being an excellent craft for cruising.

That Spendthrift II should have become involved in this unfortunate controversy with the Race Committee in no way reflects upon the sportsmanship of her owner. He was in no way responsible for the course at the start.

The other contestants apparently had difficulties in the fog. Kodak and Uthena lay-to over night and came into Block Island harbor in daylight. Falcon was reported later to have had motor trouble. Senator Bill misjudged the distance to Block Island and used up his fuel supply before reaching there. Lulamay and Viva after losing much time simply returned to New York without finishing, the demands of business making is imperative that they be back at their desks on Monday morning.

(*Continued on page 70*)



Soon after the start. Spendthrift leading followed by Turtle, Senator Bill, Viva and Kodak

Spendthrift is a new craft owned by W. R. Halsey and A. Y. Van Amringe of Mamaroneck, N. Y. She is an able 45-footer designed by Charles D. Mower of New York and built by the New York Yacht Launch and Engine Company. Her power is a 50-60 horsepower 4-cylinder Van Blerck with Philbrin ignition. During the entire run the motor gave absolutely no trouble and required no attention. It was run at about 900 revolutions for the entire distance.

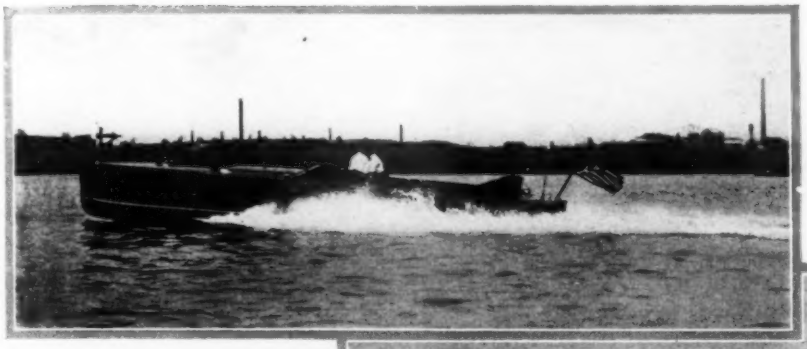
The owner of Spendthrift II, W. R. Halsey, is one of the coming motor boatmen of the day. He first became interested in racing a year ago when he entered his first Spendthrift in the Block Island race. Fog was also encountered and Captain Halsey not being any too good at navigation and due to a faulty compass did not make a very good course to the island. However, he was not discouraged in the slightest but set out to make a good navigator of himself, which he certainly has done. He also had Mr. Mower design Spendthrift II for him, which boat promises

Kodak, winner of the first prize in Class B, and Uthena, the only other boat which finished in Class B

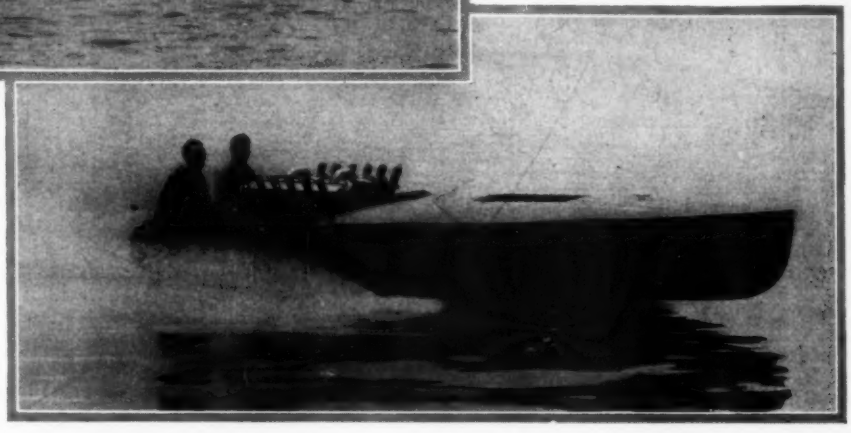
Buffalo Has Fourth of July Regatta

Hydroplane and Runabout Races of the Buffalo Launch Club Interest Thousands on the Niagara River

By Elmer M. Hill



Miss Peerless, owned by Rear Commodore Grimm, which finished first in the hydroplane class



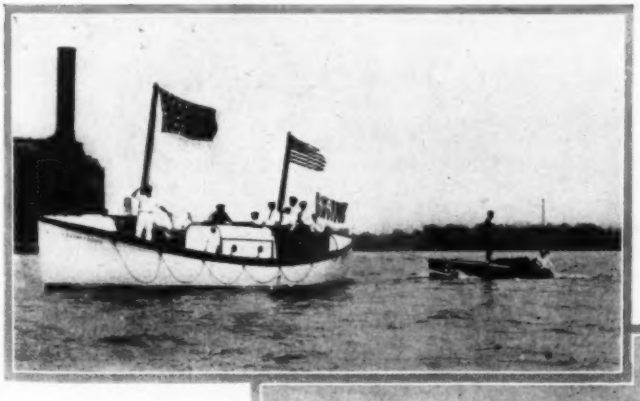
Bone Dry, owned by Fleet Capt. Clarence Sidway, finished first in the runabout race

MORE than 75,000 persons lined the American shore of the Niagara River July 4th to watch the Independence Day races of the Buffalo Launch Club. Two events were on the racing programme, one an event for hydroplanes driven by a single motor and the second was for displacement runabouts.

Roaring around the 5-mile course at a speed faster than a mile a minute, Miss Peerless of Rear Commodore Edward L. Grimm defeated Arab IV of Commodore Ralph H. Sidway. The Arab was forced out of the race at the end of the fifth mile with a broken shaft. She was towed to shore by the crew of the United States coast guard which patrolled the river during the races. The time for the 10 miles was 9 minutes 20 seconds.

In the displacement runabout race Bone Dry of Fleet Captain Clarence Sidway nosed out Over the Top of Vice Commodore Humphrey Birge by one-half second. The time for the 10 miles was 15 minutes 20 seconds. Lidwina II of Sylvester B. Eagan was third and Sari of Mrs. Ralph H. Sidway, fourth.

Vice Commodore Birge's new plane, Hy'N Dry, piloted by Captain "Dinty" Moore, flew over the speed demons as they roared up and down the river.

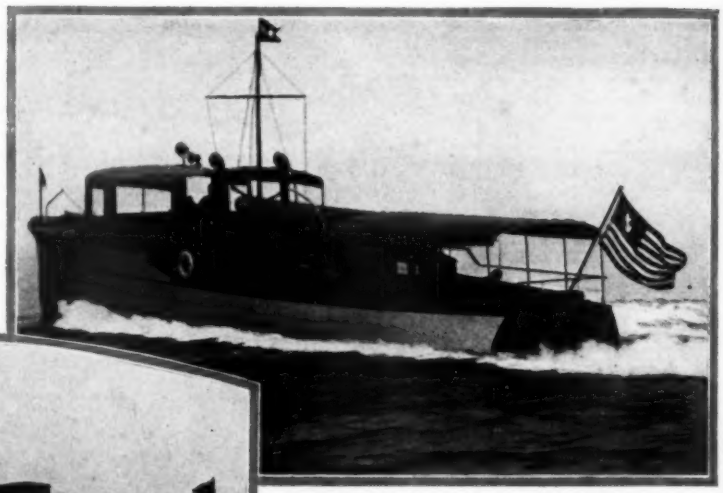


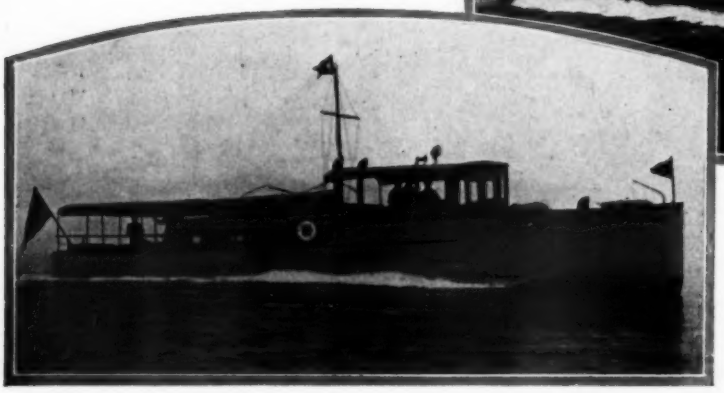
U. S. Coast Guard rescues Commodore Ralph Sidway's hydroplane Arab IV, which broke shaft

Hy'N Dry, Vice Commodore Humphrey Birge's plane, flying over the course

A New Lucetta

Replacing an Earlier Boat of the Same Name, the New One Fully Lives Up to the Reputation Established by Her Predecessor





Pictures taken during the trial trips of the new Lucetta early this season. She was built by the Luders Marine Construction Company and is equipped with a pair of 6 cylinder Van Blerck motors which drive her at practically 25 m.p.h.

VERY interesting trial trips were held recently of the 58-foot express cruiser Lucetta which was designed and built by the Luders Marine Construction Company of Stamford, Connecticut, for DeVer H. Warner of Bridgeport, this boat replacing the well-known 42-footer of the same name.

The trial trips were held on Long Island Sound, endurance runs being made between Stamford and Stratford Shoal in the 60-mile easterly gale maintaining at that time. Although this was rather a strenuous weather condition for trying out a new boat the craft behaved remarkably well, the six-cylinder Van Blerck engines maintaining their full revolutions continuously without skip, miss or any trouble of any sort whatsoever.

A trial a few days later in calm water at the same revolutions gave a speed of 24.35 miles an hour, which is most creditable for a boat of this length 11 feet in width and weighing in excess of 15 tons.

By the photographs it will be seen that the boat presents a most attractive appearance and in design is a concave V bottom of the Luders type in which the hard chines of the after body smooth out into a ship shape form forward eliminating the hardness that is so often associated with this type of boat.

This week-end cruiser exemplifies to the last degree the up-to-date developments of such a boat.

The hull is double skinned throughout with a very sturdy and substantial oak frame. There are four water-tight bulkheads, a steel bulkhead being located at each end of the engine space.

The machinery is located amidships, and the distribution of the gas tanks, which have a total capacity of 500 gallons, is such that there is no noticeable change of trim between the light and empty condition.

In the engine room besides the two 6-cylinder Van Blerck engines there is installed an independent Matthews water-cooled generating set.

The arrangement of the boat consists of a chain locker forward with a water-tight bulkhead separating it from the forward toilet room. Immediately after this is the forward cabin, which is finished in selected butternut varnished and rubbed to an eggshell finish. The upholstery consists of thick spring cushions of brown and gold velour with an arrangement permitting the backs of the seats to be swung up making emergency accommodation for four people.

In this compartment are also located: Buffet, cabinet and closets and immediate after this room is a most attractive galley which has a hatch to the deck.

The forward room is entered by a side companionway so much used in the Luders boats which permits of entrance into that room without passing through the galley.

The dining room forward is adjacent to the galley which in turn is far enough from the bow so that cooking in reasonably rough weather, on account of the pitching of the boat, will not be impractical. The diagonal side companionway—a feature almost exclusively confined to "Luders Boats"—permits of access to the saloon without the necessity of passing through the galley which in turn has its own hatch to the deck for access and ventilation.

We now come to the bridge deck, which is complete with its steering gear and its controls that permit of the entire operation of the boat by one man.

The engine room now follows and is of exceptional size, permitting by its spaciousness good accommodation for three men.

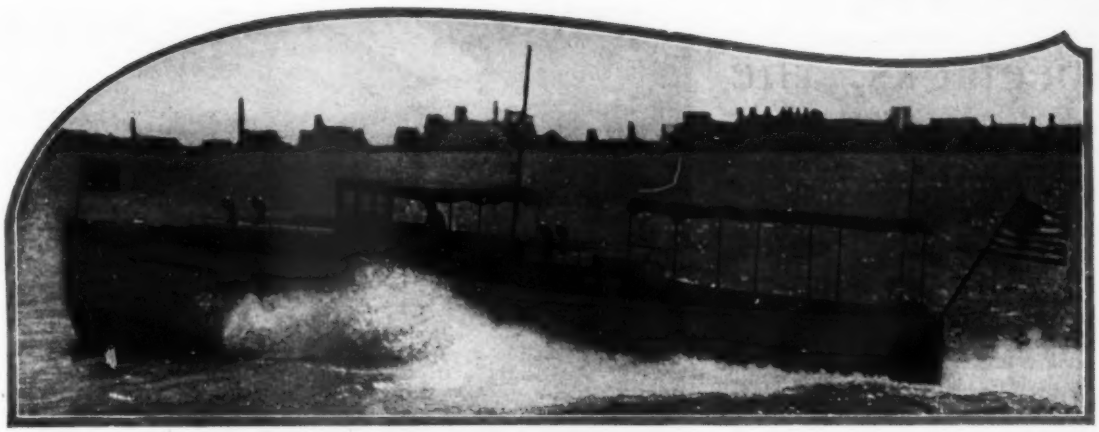
Aft of the engine room the space is completely given up to the owner, there being a good-sized main cabin finished entirely in solid African mahogany in the natural wood rubbed to an eggshell finish. A very large gun and coat locker and a toilet room are connected with this room.

Gasoline is carried in cylindrical tanks, distributed fore and aft so as to have the least possible effect on the trim of the boat as the fuel is consumed; the very unusual tankage of 500 gallons of gasoline is provided in addition to a fresh water supply of 250 gallons.

The upholstery in this cabin is in blue and gold, a most attractive looking room being obtained by this combination.

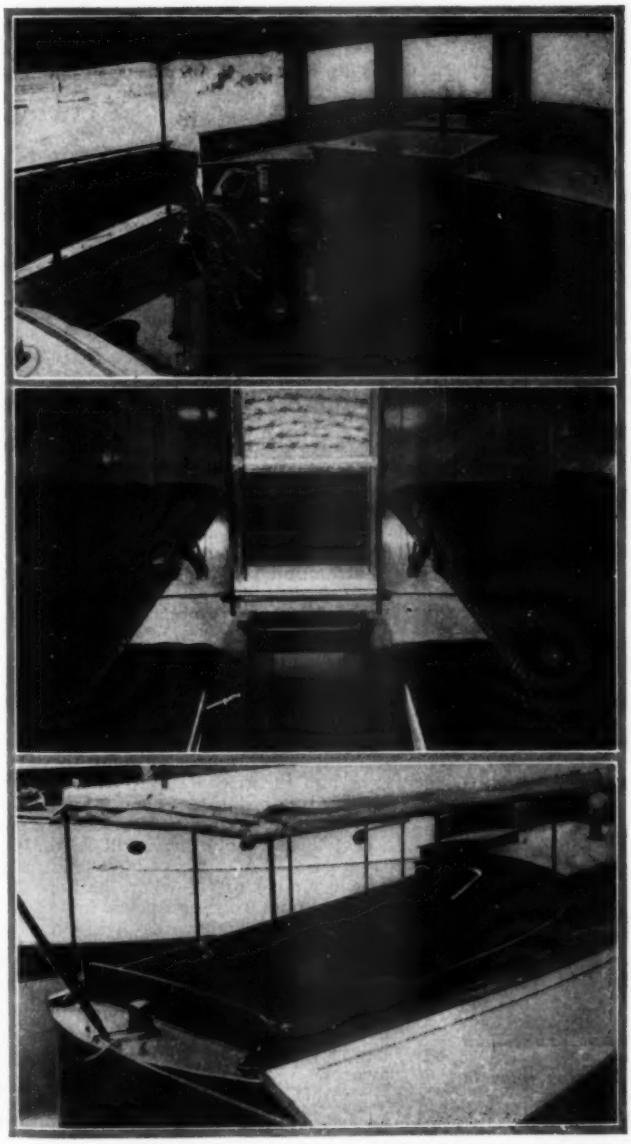
An outside feature of the boat is a large cockpit aft of the cabin just described. This cockpit has ample capacity for a dozen or more people and in conjunction with the well-protected bridge deck the boat seems to be absolutely ideal for day sailing and an occasional overnight trip.

Mr. Warner will fly the colors of the New York Yacht Club; the home port will be Southport, Connecticut.



Boss, a 42-Foot Express Cruiser

A Boat Which Is To Be In Service the Year Around, Designed To Accommodate a Large Party for Day Cruising



Interior and exterior views of Boss

A FORTY-TWO-FOOT express cruiser has just been built for A. D. Goldman, of St. Louis, which reflects the best arrangement plan ever developed for the purpose for which the boat is intended. The problem which Mr. Goldman presented to the builders, the Great Lakes Boat Building Corporation, of Milwaukee, Wisconsin, was to design a boat that could be used at his home at Charlevoix during the Summer and in Florida waters during the Winter; the cruiser to be built within the length of 42 feet; to afford sleeping accommodations for a party of four, and to offer extensive accommodations in a cockpit for large day parties.

Obviously, by reason of the waters to be navigated, the most essential factors were seaworthiness and safety, combined with comfort, extensive accommodations and a turn of speed of 23 or 24 miles an hour.

The cruiser, in a sense, is built around the engine compartment, which, with its cabin trunk, permits of full head room and easy accessibility to the power plant. In boats which may be called upon to navigate very heavy seas it is absolutely vital and necessary that the power plant be housed in a compartment which will permit the engineer to inspect the engine while the boat is under way without any possibility of shipping water aboard to interfere with the ignition apparatus. The trunk cabin over the engine is the only arrangement by which this can be accomplished. All the engine controls are carried to the helmsman's position on the bridge deck for one-man operation.

The six-cylinder GR Sterling gave Boss, the name selected by Mr. Goldman for his 42-footer, a turn of speed of 24 miles an hour, which is most remarkable in view of the fact that the boat is built very heavily throughout with batten seam hull and fully equipped for extended cruising.

The main cabin, as shown in the photograph, is worked out with seat berths that form uppers and lowers by night, offering accommodations for four in full width single berths. The galley adjoining the main cabin is provided with kerosene range with oven, large refrigerator, sink, lockers and dish racks, so that the boat is self-sustaining for extended cruising.

Accommodations for day cruising are provided on the bridge deck and in the large cockpit aft. An athwartship seat is provided on the bridge, which is protected by windshield, canopy and side curtains. The cockpit is furnished with an athwartship seat across the stern, together with wicker chairs. The canopy over the cockpit is removable so that it can be dispensed with on fishing trips either in northern or southern waters.

Speejacks, the Ocean Cruiser

A Sturdy Craft Which Will Soon Start a Round-the-World Cruise

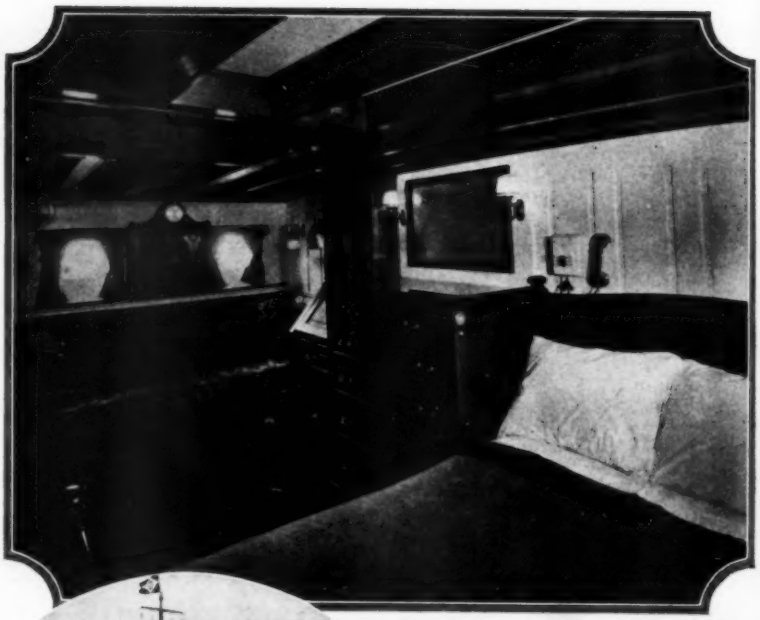
THE ocean cruiser Speejacks recently completed by the Consolidated Shipbuilding Corporation of New York, for A. Y. Gowen, Chicago Capitalist, is at her moorings at the Chicago Yacht Club Basin. She is being finally fitted out and given her trial spins preparatory to her maiden voyage—a fifty-thousand-mile cruise around the world upon which Mr. Gowen's party will embark in midsummer.

With the completion of this snug and sturdy craft Mr. Gowen's long-cherished ambition to take a boat less than one hundred feet in length around the world is about to be realized, and his log when finally written will doubtless tell a story unique in the annals of amateur travel.

Considerations more altruistic than the pleasures of the promenade deck of the trite experience of the typical tourist have promoted Mr. Gowen's far-flung enterprise. He is taking a year out of his business life to bring back to America in specimen, prose and picture a real contribution bearing upon the manners and customs of remote and strangely-peopled places. Volumes of marine intelligence gathered from every source—maps and charts and soundings, tides and winds and moons—together with his own fund of knowledge as a licensed navigator—will give him safe conduct in reconnoitering recondite parts while official letters granted only to the few give him the friendly freedom of many a fabled fairyland.

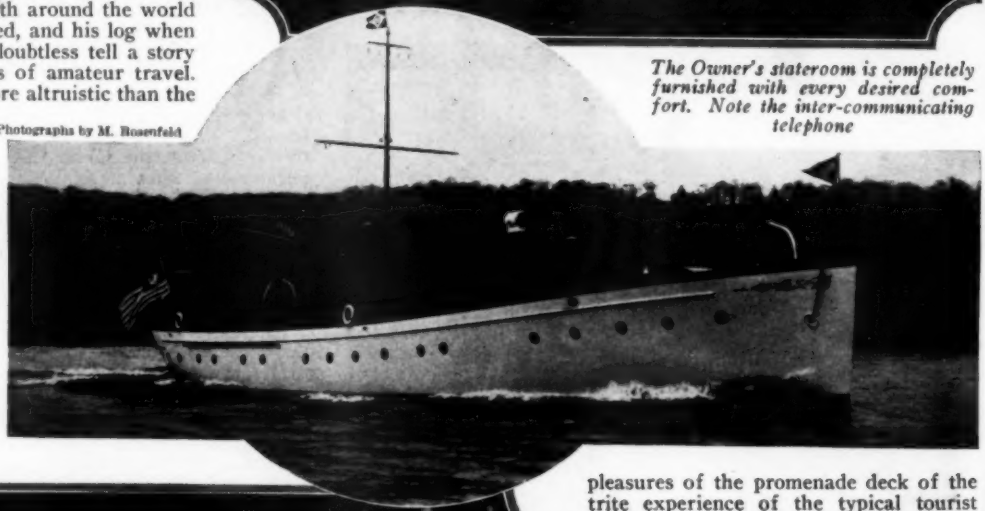
Standing out to sea from the Pacific Coast the first objective will be the islands of the South Seas—lately endeared to every adventurer—where he hopes to put the nose of Speedjacks into some undiscovered country that will rival in charm and interest the well-told tales of the Marquesas. Thence to Australia and up through the Philippines to the storied coast of Nippon, giving a wide berth to the populated centers and sneaking in to take the unknown native unawares.

(*Continued on page 56*)



The Owner's stateroom is completely furnished with every desired comfort. Note the inter-communicating telephone

Photographs by M. Rosenfeld

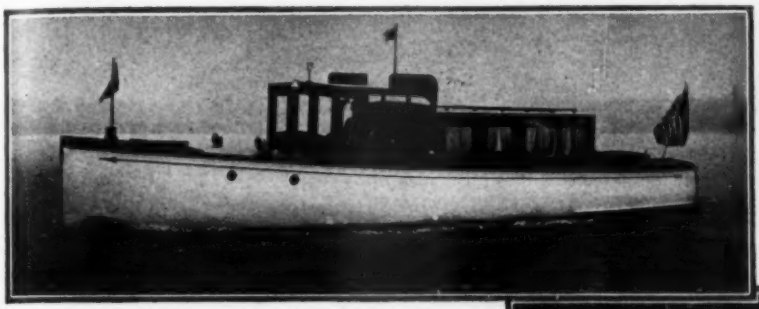


Speejacks will shortly start on a 50,000-mile cruise around the world

The forward deck house will provide a comfortable lounging room in which to spend the time when at sea

Lightnin, the Gas-Electric Cruiser

An Application of the Theory of Electrical Ship Propulsion to an Interesting Type Small Boat With Highly Efficient Results

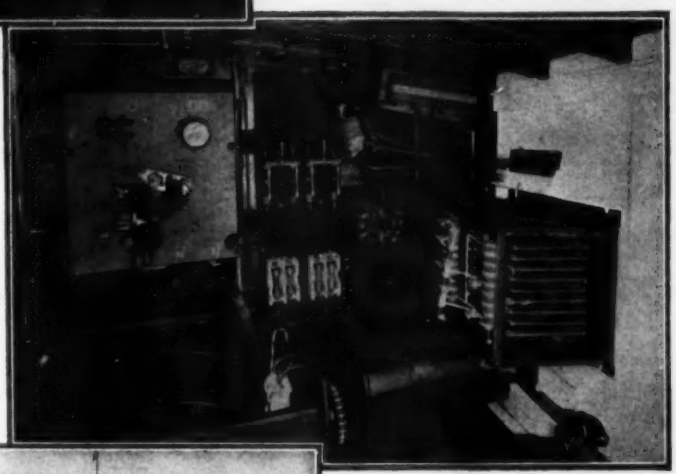


Lightnin, the 40-foot electric cruiser which can travel at 9 m.p.h. with power generated by two Universal generator sets

THE application of electric ship propulsion to the small day cruiser is the latest development in motor boat practice. This departure is here illustrated in connection with the 40-foot gas-electric cruiser Lightnin which was recently completed by the Dawn Boat & Shipbuilding Corporation for William T. Donnelly.

The little craft is just brim full of new ideas in small boat construction and the good features begin as they always should with Safety First, that is, Lightnin has been made non-sinkable in the broadest sense of the word. All the space below the water line is either occupied by gasoline and water tanks or is filled in with Balsa Wood, a recent importation from the Tropics which is actually lighter than cork, with the result that in case the boat is damaged by collision or grounding it will continue to float even when the water level inside and out is the same, after which of course no more water would enter. But this development has not stopped even with this most desirable condition. All parts of the

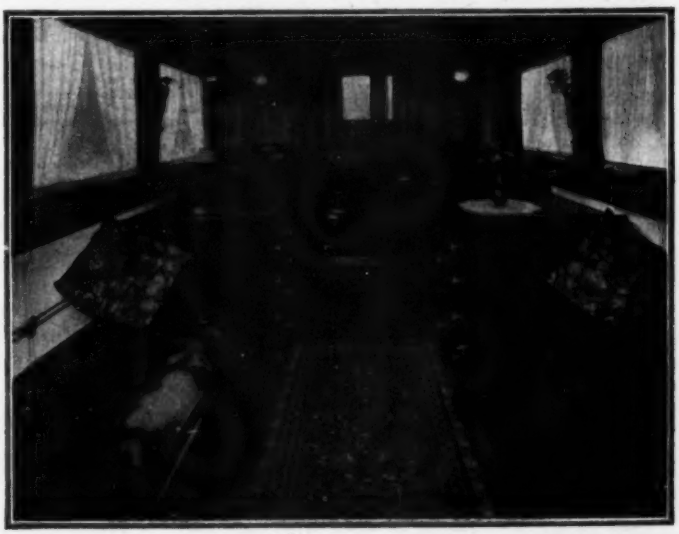
(*Continued on page* 68)



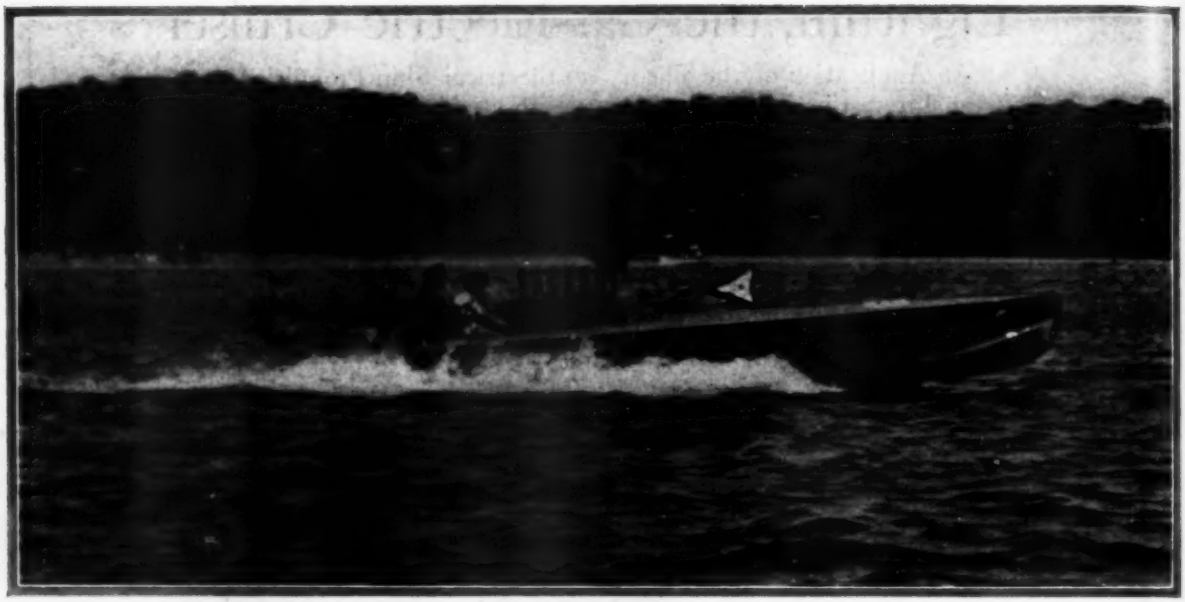
The main drive motor takes its power from the Universal generator sets at 220 volts. It can be controlled from full speed ahead to full speed astern instantly with full power available in either direction

Another electric installation, New Era and Dawn. Power is generated on the boat astern and transmitted over cables to the one ahead

Steering and control station of Lightnin. The engine room telegraph is inter-connected to the electric drive motor and handles it directly



The interior cabin arrangement is roomy and tasteful. Electricity is used for lighting and cooking in the galley



Miss Chicago, C. C. Smith's latest production

Miss Chicago, the Speedster

Commodore Clark Proves That a Seventy Mile an Hour Hydroplane Can Be Used as a Runabout

By Verra Thomas Griffith

Miss Chicago is a new boat designed and built by the C. C. Smith Boat and Engine Company of Algonac, Michigan. She is powered with a twin six Smith motor developing about 450 horsepower. The workmanship on Miss Chicago is of the highest order and she runs in the usual smooth manner which is characteristic of Smith boats. Miss Chicago is owned by Commodore Sheldon Clark of the Chicago Yacht Club and a number of prominent Chicago business men. In her trials she made a speed of better than 70 miles an hour. In the first heat for the Webb Trophy at Peoria without competition and carrying the Editor of MoToR BoatinG as a passenger she showed a speed of better than 57 miles an hour for the 25 mile race. Miss Chicago will compete at The Pageant of Progress Races at Chicago in August, at the Gold Cup Races at Detroit and probably will be one of the American team to meet the British boats in September at Detroit for the British International Trophy.—EDITOR.

AFFRIGHTED anticipation, a roaring realization, a singular soaring sensation, extreme exhilaration, absolute approbation and cause for congratulation. These in alliteration, and also in order, are the emotions aroused by being a passenger in Miss Chicago when she is hitting the water at 70 miles per hour.

Miss Chicago, as even the most lukewarm power boat fan knows, is the marvel craft of the Windy City, which, with Commodore Sheldon Clark of the Chicago Yacht club at the wheel and Bernard Smith, son of Chris Smith of Algonac, petting the engine, romped away with the Webb trophy at the recent regatta of the M. V. P. B. A. at Peoria. It was there, on the lower lake where the races were staged that I had the joy of analyzing, through personal experience, just what the aforesaid emotions might be.

When Commodore Clark, who, by the way, is just as ardent and skillful a "toddler" as he is a speedboat driver, carelessly inquired during the course of a dance at the I. V. Y. and C. club the first evening of the regatta, "Would you care to ride in Miss Chicago?" I gulped, gurgled, came up for air, and gasped that I would. He was as casual in extending the invitation as though he had said, "would I care for an ice-cream soda" or any other little thing like that; while I was as thrilled and excited in accepting it as though Apollo had proffered a bid to ride in his sun-chariot. Would I ride in Miss Chicago, wonder boat of the regatta, of which even old-timers in the game spoke with awe? I most emphatically and enthusiastically would.

But in the cold grey dawn of the morning after—the morning of the ride—there began to trickle into my mind many tales of how body-cracking and soul-frightening it was to ride in a speed boat. Visions of many an impromptu flip-flop into the river I had seen performed by those who dared ride in super-speedy put-put wagons danced before my eyes. I recall how the shafting in Walter Wilde's Meteor IV had sheered off and missed his head by a narrow margin, a few weeks before, and how one of the visiting boats had gone down on the upper turn the day previous. And as these memories and visions waxed more numerous my ardor waned in proportion.

So it was with "affrighted anticipation" that I clambered up the plank leading on to the barge where Miss Chicago reposed in state when not in the water. I had weakened, but I hoped not visibly so. With pitying thought of the Noble Six Hundred whose fate also had been to "do or die" I exchanged gay greeting with the group of boat fans on the barge, and with Commodore Clark and Mr. Smith, just about to start out with Tom Webb, host extraordinaire to visiting boatmen, as passenger. Further reflections on such timely topics as insurance and set floral pieces were cut short by their return and the hearty hail "You're next, Mrs. Griffith!"

A glance at the accompanying picture reveals my costume, which was offered for my use by the genial gentleman who had preceded me as passenger. The hat, which most surely would have been lost had it gone along, fell off before the start, which was fortunate as it is the most treasured possession of its owner and really deserves a story

(*Continued on page* 84)

Weather Wisdom

An Understanding of the Appearance of Cloud Formations Will Indicate the Weather to Be Expected on the Morrow

By Captain E. Armitage McCann
(Member American Meteorological Society)
Approved by the United States Weather Bureau

Photograph by E. M. Newman

IT is not intended here to enter upon a lengthy treatise on Meteorology; of the whys and wherefores of different weathers, of balanced forces, Geostropic, Convective, Katabatic or Anabatic winds; nor even of the Barometer, which instrument is, of course, the best and most reliable method of weather prediction. Only this, if you have a barometer marked FAIR, CHANGE, STORM, entirely neglect this wording. It is the rise and fall of the mercury or hand, that counts, not where it happens to be pointing at the moment, and whether it is long and steady in its movements or quick and fluctuating.

Long foretold, long last,
Short notice, soon past.

Also note the thermometer in conjunction with the barometer. The two should be judged together and the former will often give you longer warning than the latter.

There are many weather superstitions, firmly embedded in our inner consciousness and literature, that have no foundation on fact.

The commonest is the influence of the moon. There is no proof that it has any appreciable effect on the weather, but on the contrary there is definite proof that it has not. Sir John Herschel said: "As an attracting body causing an aerial tide, it has of course an effect, but one utterly insignificant as a meteorological cause."

There are weather prophets who will predict changes of weather by changes of the moon, even by the hour of the change, but as the changes of the moon is a regular cycle, altering from moment to moment, there can be nothing in that.

These prophets may prove their words with facility because the moon quarters weekly, so every change is bound to be within a few days of such quartering, and it is so easy to forget when the predicted weather does not occur, and to remember when it does, and this without any intentional deceit.

We are solemnly told by many, that if the crescent moon is on its back, it will be wet, and by almost as many others that it will be dry, and vice versa. Now whether the crescent is vertical or horizontal, up or down, is merely a matter of its position with reference to the sun, each position occurs at certain periods of the year and obviously has no connection with the weather.

There is just one connection in which the moon really appears to act, that is in "eating up the clouds". It does seem to disperse those clouds which gather round the horizon about the time of its rising, when near the full. But as is now well known, this evaporation of the clouds does not really depend upon the moon, so that even here the meteorological effect of the moon is only imaginary.

The sayings about the

Above: Sunset over Rio de Janeiro Harbor. The threatening appearance is chiefly due to the sun being behind the clouds, thus causing them to appear black. It also makes them difficult to exactly classify, but I would say they are cumulo-nimbus with some alto-cumulus and would predict a sharp shower with some wind and then fine again

Below: Turreted alto-cumulus. Tall cumulus below. Turreted alto-cumulus usually grow up from a base of thin, usually undulated alto-stratus. Their occurrence often is a prognostic of thunderstorms to follow in a few hours

Squall cloud connected with stratus above. Such clouds usually mark the front of severe squalls and have violent upward motion within them. Some observations indicating an upward velocity of 20 feet per second

weather at Candlemas and St. Swithin's day may be ignored.

There are a great many beliefs about the behavior of animals in connection with weather foretelling. Many of these are more frequently right than wrong, and have a scientific explanation in the varied temperature and, more particularly, humidity of the atmosphere. When we say the day is heavy, we really mean light, but humid.

Some fairly reliable animal indications of bad weather are, the low flight of birds before unsettled weather. Sea birds flying inland before a storm. Rooks in gliding, restless flight. The bees staying near their hives and irritable. Flies worrying the cows and oneself. Toads hopping over the grass, and frogs croaking lustily. Fishes feeding gluttonously. The swine restless—they are supposed to smell the wind, as are sailors, but as Scotch law says, this is not proven.

Man also has a distinct weather instinct, which can be greatly developed, but which is naturally much more acute in those who live in the open, than with others. Note: The Weather Bureau here insists that it is because it depends wholly on his personal experience. But I am inclined to think that there is a little more than that in it, because on many occasions I have relied upon my instinct rather than upon the scientific data available and in the event been right. It may have been another case of the self-deceiving weather prophet, before mentioned, but I can see no reason why, when we are away from towns, we should not be allowed some measure of instinct. In any case scientific observation is more reliable and never to be neglected when the matter is important.

Many plants are sensitive to the weather and will predict wet or fine spells, responding to changes of temperature, humidity, and sunshine.

Apart from the barometer, but to be used in conjunction with it, if possible, the clouds are our best

Thin alto-stratus (lower middle) transforming into growing alto-cumulus, which becomes merged into dense alto-stratus (lower right). Mt. Weather, Va. Photo. A. J. Weed

Cumulo-nimbus, just grown from cumulus. Note the streaks of falling snow (cirrus) from the portions of the top on the right. Mt. Wilson, Cal. Photo. F. Ellerman

weather prophets and by understanding and studying them, the weather can be fairly well predicted, but the most reliable forecasts are not to be absolutely depended upon. Weatherology is not an exact science and even the Weather Bureau, with its wonderful system of observers and weather charts, can only tell us what will most likely occur.

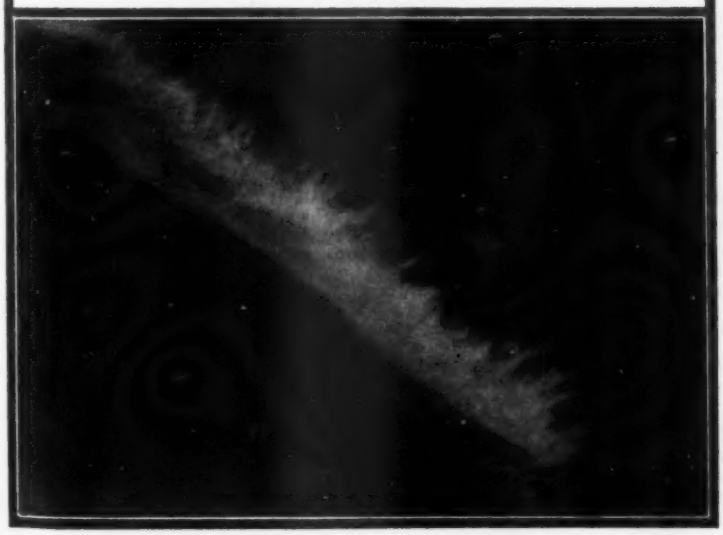
The cloud forms are called Cirrus, Nimbus, Cumulus and Stratus with their various combinations.

The highest clouds are Cirrus, most of them commonly called mare's-tails, their tops are usually some five or six miles up, and composed of ice particles. They are frequently so thin and structureless that they do not show as clouds, but just as a whiteness of the sky.

A little of this cloud, flecking the sky and then melting away is a sign of continued fine weather, but if on the other hand it comes streaming up from

Ragged alto-cumulus clouds. San Francisco, Cal. Photo. A. McAdie

Nimbus with stratus or fog below



Cirrus clouds. Mare's-tails, rain and wind to follow

cirro-stratus, getting thicker and thicker, rain and wind may be expected from that direction, perhaps one or two days later.

When it gradually turns to Nimbus or ragged rain clouds, covering the sky, expect a puff of wind, blacker clouds, fracto-nimbus, then the rain and wind will start.

Cirro-stratus may appear as a thin white sheet covering the whole sky; this is usually seen in the spring and will most likely melt away and is a sign of fine weather. Halos and mock suns seen through this are not a sign of bad weather unless the cloud is banded or markedly irregular.

Another form is Cirro-cumulus, mackerel-sky, really more like a distant flock of sheep. Similar but denser clouds are Alto-cumulus, which often predict rain within twenty-four hours. If the sky is lightly flecked expect showers, or small patches for fine weather.

Cumulus, the wool pack, is a sign of fine weather if the clouds remain white and melt as the sun increases in strength. They are formed by moisture rising from the warm earth (Anabatic winds) and cooling by expansion.

If, however, these clouds are of the Cumulo-nimbus form, that is, rising very high with black bases and coppery tints, they are thunder clouds, and bad weather, rain and storm may be expected.

Strato-cumulus is mainly a winter cloud, which often covers the whole sky for days without producing rain, though sometimes it may cause a light drizzle or snow flurries. It has a rolled or dish-like appearance and is a fine-weather indicator.

Nimbus is the rain cloud, somewhat like Strato-cumulus but ragged and usually rounded.

Fracto-nimbus or flying scud are dark parts broken off from, or growing into, a rain cloud and immediately precede a storm.

Stratus is the layer cloud, when it lies quietly at a slight altitude frequently with streaks of blue sky between the detached portions. It is a fine weather cloud, but if it is in rapid motion windy weather perhaps with rain is in store. It is especially common in the evenings and early morning.

A red sky at sunset means fine weather; a greenish hue—wind and rain; coppery—wind, and dark red—rain.

A red sky in the morning is a prognostic of bad weather; a grey morning—fine weather; a high dawn—wind; low dawn—fair weather.

A red sky at night is the shepherd's delight.
A red sky in the morning is the shepherd's warning.

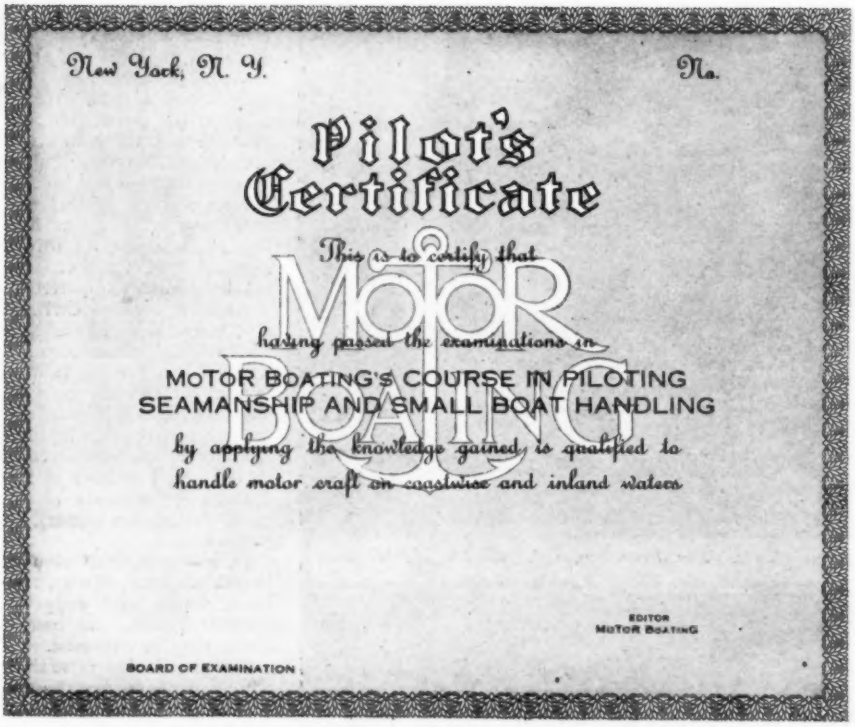
Soft delicate clouds indicate fine weather; hard-edged and oily—wind; dark gloomy blue—wind; light bright blue—fine. The softer the clouds the less wind but perhaps more rain or snow in the next few hours.

Gaudy unusual hues with hard outlines, predict strong winds. Small inky clouds indicate rain. Light scud clouds drawing across heavy masses mean wind and rain; if without the heavy masses, wind only.

It is well worth while to try and remember the names of the clouds; it makes their study so much more interesting, and the names are easy to remember, being fairly obvious.

When you look up and recognize a cloud in the sky by name, you feel it is a friend who has something to tell you, just as John Jones is much more interesting than a stranger with a brown suit.

Great clarity of the atmosphere, with distant objects well (*Continued on page* 68)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Many Pass Correspondence Course Examinations

Interest In MoToR BoatinG's Big Editorial Hit Still Continues To Grow—More Enrollments Come In—Names of Successful Students—Questions On Lessons Nos. 6 and 7 To Be Published Next Month

LAST month we explained that there would be no Correspondence Course questions published in this issue of MoToR BoatinG. Lesson Number 6, published in July MoToR BoatinG, as well as Lesson Number 7, published in this issue, are both on the general subject of the Compass. Therefore, it seems best to combine Lessons Number 6 and 7 and have one set of questions covering both of these lessons. For this reason the combined set of questions will be published in September MoToR BoatinG.

You will find the lessons printed on the pages following really a continuation of Lesson No. 6, published last month. The main points which we endeavored to drive home in the last issue were the learning of the names of the points of the compass and visualizing the compass card so that the names of the points could be connected with the compass card without reference to tables giving the names of the various points. While Lesson No. 6 was to a certain extent a question of memory, yet Lesson No. 7 is quite the opposite, for it takes up chiefly the application of compass

(*Continued on page* 80)

Subjects Which Will Be Covered In Various Lessons

Lesson No.

1. Rules of the Road, Rights of Way, Proper Whistle Signals, Duty When Underway.
2. Types and Classes of Motor Boats and other Power and Sailing Vessels, Lights for All Classes of Vessels.
3. Navigation and Government Lights, Lighthouses, Lightships, Range Lights and their Characteristics and Classification, Aids to Navigation.
4. Buoys of Various Types. Colors and Numbers, Uses and Meaning. Can, Nun, Spar, Bell, Whistling, Lighted and Combination Buoys. Starboard and Porthand Buoys, Channel, Obstruction, Anchorage and Turning Buoys.
5. Equipment Required by Law for Various Types of Boats, International, Inland, Pilot and Motor Boat Rules and Regulations, Government Publications, the Light and Buoy Lists, Tide Tables, Coast Pilots, Notice to Mariners.
6. The Compass.
7. Variation, Deviation, Magnetic and True Courses, Compass Errors and Their Application, Various Methods of Determining Compass Errors, Leeway.
8. The Chart, Various Kinds of Charts, Where to Obtain Them, Their Use, Various Markings on Charts, etc.
9. Nautical Instruments, the Log and Lead Line, Sounding Machines, Pelorus, Azimuth, Protractor, Parallel Rules, etc.
10. Piloting and Chart Work, Laying Courses, Determining Position by Various Methods, Allowing for Tides and Current Danger Angles.
11. Small Motor Boat Handling, Steering, Engine Room Signals, Action of Propeller, Action of Winds and Current, Shallow Water Indications, Tide Rips, Head, Beam and Following Sea, Picking up Mooring, Making Landings at a Float and Wharf, the Dinghy, Landing in a Surf, Navigation in Fog, Crowded Waters, Anchoring, Docking, Practical Aids in Boat Handling.
12. Cruising, Proper Equipment to Carry, Keeping a Log, Sun and Clock Time, Duties of Various Members of Crew.
13. Flags and Colors, Yatching Etiquette, Signalling.

Conquering the Compass

Variation, Deviation, True and Magnetic Courses, Allowing for Compass Errors. Various Methods of Determining Deviation.

MoToR BoatinG's Correspondence Course Lesson No. 7

By Charles F. Chapman

Figure 149. *Variation of the Compass. The variation of the compass is the angular difference between the lines drawn from a ship's position to the north geographic pole and the north magnetic pole. In the above illustration the compass's north pole is shown pointing to the magnetic north indicated by M N. A line is also shown drawn from the compass to the north geographic pole of the earth. The angle between these two lines represents the variation of the compass. If the north magnetic pole is to the west or to the left of the north geographic pole (as shown above) the variation is said to be westerly. If the north magnetic pole, is to the east, or to the right of the north geographic pole, the variation is said to be easterly. (See also figure 132, Lesson Number 6). When changing from magnetic to true courses, or vice versa, allow for variation only. And when changing from true to compass courses, or vice versa, allow for both variation and deviation. When changing from magnetic to compass, or vice versa, variation need not be considered or allowed for*

Figure 150. *In addition to the variation of the compass illustrated in figure 149, there may be another error of the compass, which is caused by various magnetic substances on the boat itself attracting or repelling certain points of the compass. This error is known as the deviation of the compass. When the north pole of the compass is turned to the left, or to the west from its normal position, as illustrated above, the deviation is said to be westerly. If the north pole is pulled toward the east, or to the right, the deviation is said to be easterly. Obviously, the deviation of the compass is different for each particular boat, and furthermore, is different for each particular heading the boat happens to be on. Deviation must be allowed for when changing from magnetic to compass courses, or vice versa. When changing from true courses to compass courses, or vice versa, both variation and deviation must be allowed for. When changing from true to magnetic courses, or vice versa, deviation may be neglected.*

LESSON Number 6 was devoted to the preliminary study of the compass, the learning of the various names for the thirty-two points of the compass and the names of all of the quarter points. There is also some reference to variation and deviation and to the meaning of true and magnetic courses. We now come to a further consideration of the compass, and principally to its many errors and the application of variation and deviation as applying to small boat practice.

As we endeavored to emphasize in Lesson Number 6, there is nothing mysterious about the compass or any of its actions. Therefore, the motor boatman should not consider his compass an inconquerable foe, but quite to the contrary, he should learn to respect and believe in what his compass tells him. More disasters have occurred due to the fact that the mariner believed that he knew more than his compass, than from any other cause. It is true that the compass is subject to certain errors to be explained in this lesson but these errors may be readily determined and allowed for. Therefore, every motor boatman should study his compass, learn to believe in it and make use of it on every possible occasion.

Variation

(*See Fig. 132, Lesson No. 6*)

If you were on your boat at the position marked *A*, and your boat was heading as indicated by the dotted line, she would be heading true North, but the compass would be pointing in a decidedly different direction, indicated by the dotted line from *A* with a point marked *MN*. In other words, your boat would be headed true North, but the magnetic heading would be quite different. This angular difference between the true North and the magnetic North is known as the variation of the compass, shown in Fig. 132 by the angle between North Pole, *A*, and *MN*.

One will immediately see from Fig. 132 that this variation of the compass is not constant; that is, it is different with every change in geographical location. If your position is at *B*, your boat is still heading true North, and your compass towards *MN*. Observe that the angle between true North and the magnetic North at position *B* is decidedly different and smaller than when at *A*. In other words, the variation of the compass at *B* is much less than at *A*. In both cases the magnetic North has been to the West, or to the left of the true North, which makes the variation what is known as westerly. Now consider for a moment your position at *C*. In this case you will notice that your boat is heading towards the true North, and also towards the magnetic North. In other words, there is no angle between the two poles. Therefore, at position *C*, or anywhere along the heavy line leading from *C* towards the poles, the variation is zero. At *D* we again have a variation, but in this case the magnetic North is to the East, or to the right of the true North, and we, therefore, have an easterly variation. At *E*, the boat is heading towards the true North,

(*Continued on page 27*)

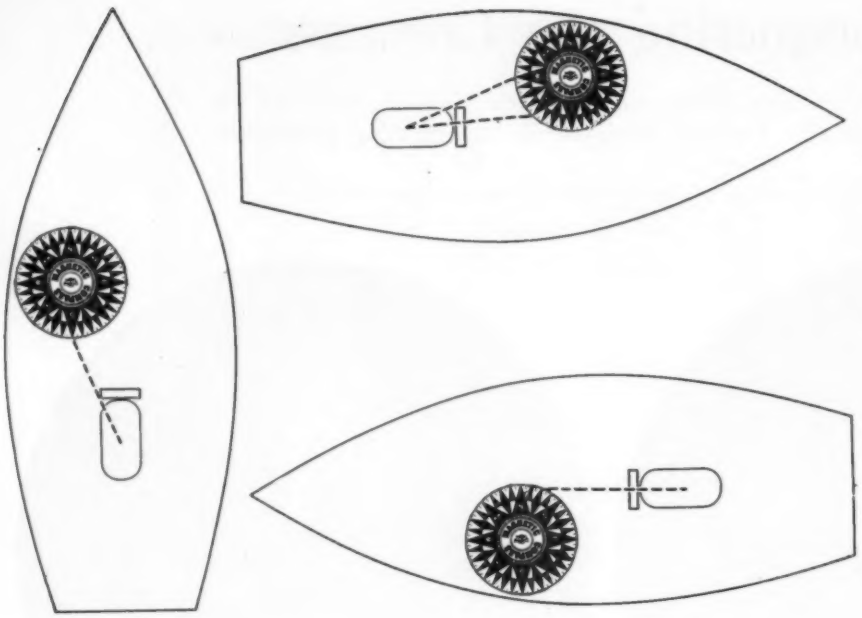
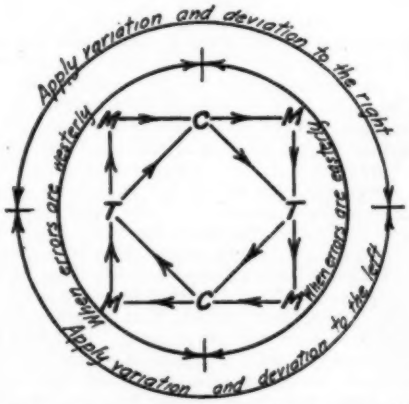


Figure 151 (at the left). *These diagrams are intended to illustrate why the deviation of the compass on any particular boat is different for each particular heading on which the boat happens to be. The diagram of the engine is assumed to be the center of magnetic substances on the boat which have an effect upon the compass and cause deviation. In the case of the boat at the extreme left, which is heading in a northerly direction, this magnetic influence, it will be seen, is nearest the south and southwest poles of the compass and is deviating the compass to the right or to the left, depending whether the magnetic influence is positive or negative. In the case of the boat heading in the general easterly direction this magnetic influence is nearest the west and southwest poles of the compass and consequently affects the compass in an entirely different manner, as in the case when the boat was heading northerly and the magnetic influence was on the southerly part of the compass. In the case of the boat heading westerly it will be seen that the magnetic influence of the motor and other metallic substances on the boat are nearest the north and northeast poles of the compass and consequently affect the compass in an entirely different way on this heading than on any other heading. For these reasons the deviation of the compass is different in amount for each heading of the boat*

	(A) Known or Given course	(B) Course to be found	(C) Variation or Deviation Separately or the sum of the two	(D) To find the Course (B) apply variation or deviation (C) to the right or left of known course (A) as follows:	
				by points	by degrees 0° to 360°
1	True	Magnetic	West	Apply Var. to Right	Add
2	True	Magnetic	East	" Var. to Left	Subtract
3	True	Compass	West	" Var ± Dev. to R.	Add
4	True	Compass	East	" Var. ± Dev. to L.	Subtract
5	Magnetic	True	West	" Var. to Left	Subtract
6	Magnetic	True	East	" Var to Right	Add
7	Magnetic	Compass	West	" Dev. to Right	Add
8	Magnetic	Compass	East	" Dev. to Left	Subtract
9	Compass	True	West	" Var. ± Dev. to L.	Subtract
10	Compass	True	East	" Var. ± Dev. to R.	Add
11	Compass	Magnetic	West	" Dev. to Left	Subtract
12	Compass	Magnetic	East	" Dev. to Right	Add

Note: If courses are given in degrees (old method) with 0° at south and 90° at west above application does not hold good.

Figure 152 (at the left). *This table shows the various methods of applying variation or deviation when changing from true courses to magnetic courses, magnetic courses to compass courses and compass courses to true courses, or vice versa. The known or given courses are shown in column A, and courses to be found in column B and the direction of variation or deviation in column C. Column D shows whether the variation or deviation (Column C) should be applied to the right or to the left of the known course (Column A) to determine the unknown course (Column B). For example, suppose the true course were southwest and it was desired to find what the magnetic course would be in a locality having one point westerly variation. By referring to Figure 152 one will see that to change from a true to a magnetic course with a westerly variation comes on line number 1. Under column D it states to apply the variation to the right. Therefore, the point to the right of southwest would be southwest by west, which is the magnetic course sought. Again if the true course were southwest and we desired to find the compass course with the variation of one point west and the deviation of one-half point east, we will find the correct method of doing this given on line 3. The net error in this case, that is, one point westerly variation and one-half point easterly deviation, amounts to a net westerly error of one-half point, which, according to the table, should be applied to the right. Therefore, the compass course in this case would be southwest one-half west*



Arrows indicate "from and to"; for example, to find a compass course (C) from a true course (T) apply errors to the right when error is westerly, and to the left when error is easterly, or to go from a magnetic course (M) to a true course (T) apply error to the right when error is easterly and apply error to the left when error is westerly

Figure 153 (at the right). *This figure shows diagrammatically the same points which are brought out in the table above, namely, methods of applying compass errors to the right or left when changing from one kind of a course to another. It should be remembered that when changing from a magnetic to a true course, or vice versa, allow for variation only. When changing from magnetic to compass courses, or vice versa, allow for deviation only. When changing from true to compass courses allow for both variation and deviation, that is, the algebraic sum of both errors*

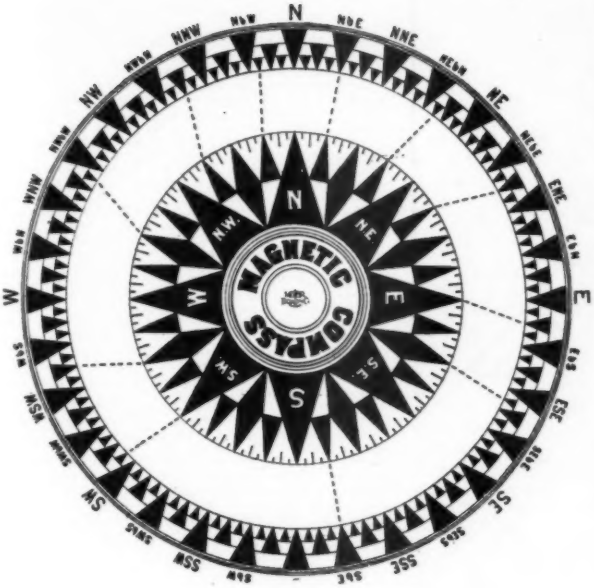


Figure 154 (*at the left*). *This is a very convenient form of deviation card to carry aboard your boat at all times to indicate the amount of deviation which your compass has on the various headings. It will be noticed that the card consists of an inner compass and an outer one. The inner compass is supposed to indicate magnetic directions and the outer compass the directions as shown by your own compass. The directions which would be shown by your own compass corresponding to the correct magnetic directions are indicated by connecting the corresponding points by a dotted line. For example, if one's compass showed zero deviation on a northeast course then the northeast points on the two compasses would be connected by a dotted line. If when sailing a northeast by north course one's compass indicated northeast ¼ north then these two points would be connected by a dotted line as shown. If on an easterly magnetic heading one's compass showed east ½ south then these two points would be connected as shown. The same method is followed entirely around the compass card. The method of using such a deviation card is very easy. For example, supposing it was desired to steer a southwesterly magnetic course then by referring to the deviation card and following the dotted line opposite southwest on the inner compass one would see that it led to the point southwest ¼ west on the outer compass. This then would be the direction which one would have to steer by his own compass to make good a southwesterly course. Suppose one desired to steer a course southwest by west. By referring to the deviation card you would find no dotted line at this point. However, there is a line one point to the left and also one a point to the right. By referring to each of these you would see that at the point to the left there was a quarter point error, while at the one to the right was an error of half a point, therefore it could be assumed that the error at southwest by west would be approximately ⅓ of a point*

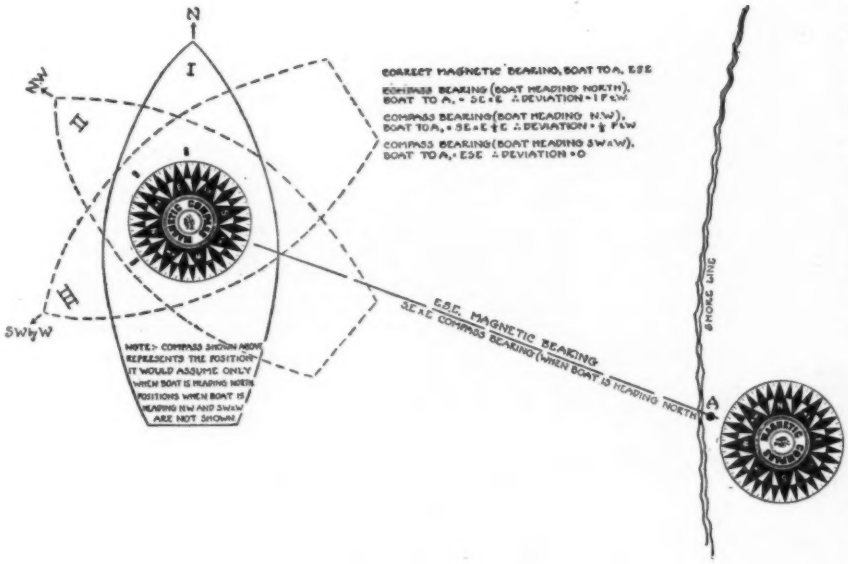

N
NW
I
II
III
SWbyW
CORRECT MAGNETIC BEARING, BOAT TO A, ESE
COMPASS BEARING (BOAT HEADING NORTH), BOAT TO A, = SE by E ½ E ∴ DEVIATION = 1 PT W
COMPASS BEARING (BOAT HEADING NW), BOAT TO A, = SE by E ½ E ∴ DEVIATION = ½ PT W
COMPASS BEARING (BOAT HEADING SWbyW), BOAT TO A, = ESE ∴ DEVIATION = 0
NOTE:- COMPASS SHOWN MERELY REPRESENTS THE POSITION IT WOULD ASSUME ONLY WHEN BOAT IS HEADING NORTH. POSITIONS WHEN BOAT IS HEADING NW AND SWbyW ARE NOT SHOWN.
ESE. MAGNETIC BEARING
SE by E ½ E COMPASS BEARING (WHEN BOAT IS HEADING NORTH)
SHORE LINE
A

Figure 155 (*at the left*) *represents a method of determining the deviation of one's compass by means of bearings of an object on shore. The boat is anchored in a fixed position bow and stern so that it may be swung at any desired heading. The compass is taken ashore, placed at any point which we might call "A" and a bearing taken from "A" to the boat. As there will be no deviation to the compass which is on shore a correct magnetic bearing can be obtained from "A" to the boat. This is noted and the reverse bearing found to be east southeast, for example. Then the compass is returned to its position on the boat and the bearing taken from the boat to point "A" with the boat heading in a northerly direction. It might be found this bearing is southeast by east, whereas the correct magnetic bearing as indicated by the compass on shore was east southeast; therefore, it will be readily seen that the compass is showing a deviation of one point west when the boat is heading north. The next operation is to swing the boat so that she will head northwest and then another bearing is taken by the compass on the boat to point "A". This may be found to be southeast by east one-half east for example, which will indicate a deviation of one-half point west on a northwesterly heading. The boat is then swung on to another heading, southwest by west for example, and a bearing taken from the boat to point "A". In this case the bearing might be east southeast, which it will be seen is the correct magnetic bearing also, therefore the compass has zero deviation on its southwest by west heading. The boat should be swung through as many headings as possible and bearings taken on each of these headings, from the compass on the boat to the point "A". In this way it will be possible to get the deviation of the compass on all headings. The results should be noted on a card which should be kept on board for future reference*

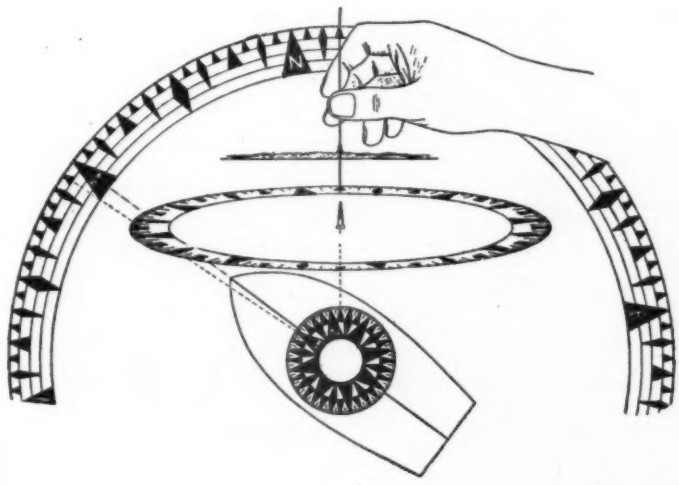


Figure 156 (*at the left*) *indicates a method of the determining deviation of the compass by means of a bearing on a distant object such as lighthouse, headland, or any other object which can be readily located on the chart. The outside semi-circle is included in the diagram merely for illustrative purposes as an indication that the lighthouse (shown with a strip of shore line immediately below the hand) bears north ¼ east magnetic from the object's position. This magnetic direction is really determined from the chart by a line drawn from the boat's position to the object and this line transferred to the compass rose on the chart. With a boat heading in any direction say northwest, by taking a bearing of the distant object with one's own compass it will be observed that the object bears say north by east. As the correct magnetic bearing is north ¼ east and the compass bearing north by east when the boat is heading northwest, it immediately shows that the compass has one-quarter point westerly deviation at this heading. In the same way other observations should be taken from the same point to the same object but with the boat on different headings. In this way the deviation will be accurately determined on as many headings*

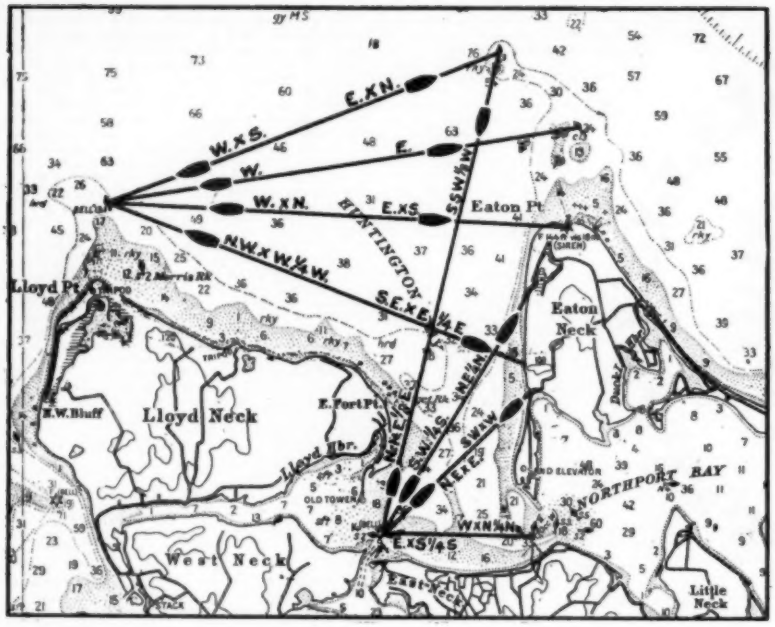


Figure 157 (*at the left*) *indicates a convenient method of determining one's compass deviation by putting the boat over a number of courses whose directions are known or can be determined readily from the chart. For example, that piece of water shown in figure* 157 *is part of Huntington Bay. An examination of the chart will show a number of fixed aids to navigation, buoys, headlands, etc. For example, we have bell buoy No.* 13-*A off Lloyd's Point, a red and black spar off Eaton's Neck, can buoy No.* 13 *off Eaton's Point, Eaton's Point Lighthouse, Lloyd's Harbor Lighthouse, a light buoy at the entrance to Northport Bay, a white cupola at Eaton's Neck shore line, etc. The magnetic directions between each two of these can be readily determined from the chart itself. It will be found, for example, that the red and black spar bears east by north from the bell buoy No.* 13-*A, therefore, if one's boat is sailed over this course and the compass indicates any other course than east by north then one will know that he has a certain amount of deviation to this compass on this heading. After this has been observed and by reversing the direction of his boat so that he is running from the red and black spar toward bell buoy No.* 13-*A, which is in a west by south direction he will be able to determine deviation of his compass on this heading by observing the direction indicated by his compass and comparing this with the magnetic direction, which is west by south. In the same way when sailing from bell buoy* 13-*A toward the can buoy No.* 13, *which is in a westerly direction, he can determine his deviation on this heading. In a similar way, following over all possible courses he will be able to get his deviation on a large number of headings*

Figure 158 (*at the left*) *shows the compass rose on the chart showing an easterly variation of* 23 *degrees, which is equivalent to approximately two points. It will be remembered that by easterly variation we mean that the magnetic north is to the right or eastward of the true north. One will notice by observing this compass rose that the rose consists of an outer and inner circle each of which is divided into a certain number of divisions. It will also be noted that the divisions do not correspond. The outer circle indicates true directions and the inner circle indicates magnetic directions. When determining true courses one will have to refer to the outer set of divisions yet, while working with magnetic courses or directions he must use the directions indicated on the inner circle*

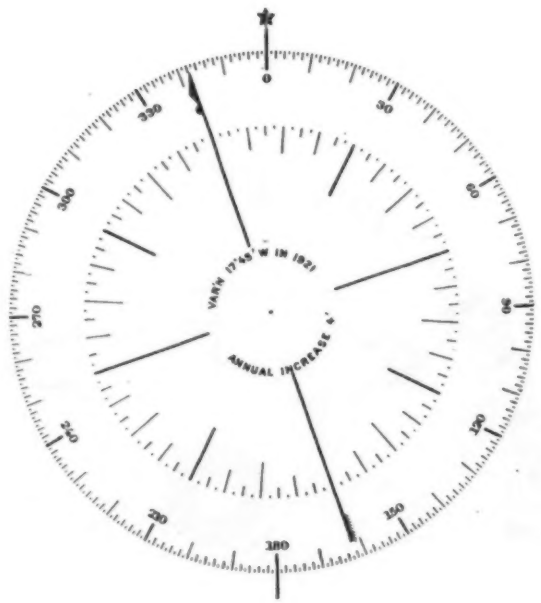


Figure 159 (*at the right*) *illustrates a compass rose showing a westerly deviation of about one and one-half points. By comparing this compass rose with the one shown above, indicating an easterly variation, one will be able to readily distinguish between the two. To determine the amount and direction of variation it is only necessary to refer to the compass rose on the various charts. This is invariably given in the center of every compass rose. It should also be noted that the variation of the compass varies in the amount for a particular locality from year to year. This variation in variation is also noted on the compass rose. In figure* 159 *it will be noticed that the annual increase is four minutes. Therefore, to determine the amount of variation for any particular year it is only necessary to do a little calculating*

(*Continued from page 23*)
but going away from the magnetic North. In such a case, while the boat is heading North, the compass is pointing South, and we have 180 degrees variation.

Change in Location

As has just been mentioned, the variation of the compass is different for every geographical location. In the vicinity of New York City the variation is about 9 degrees westerly; around Portland, Me., it is about 15 degrees westerly. As we go West the variation becomes less and less until in the vicinity of Lake Superior we have zero variation. Farther West than this the variation becomes easterly, and increases in magnitude.

Determining Variation

(*See Figs.* 158 *and* 159)

One may now ask how to determine what this variation is. This is a relatively simple matter, as on every one of our Government charts this information is given. Fig. 159 gives what is known as the compass rose on the chart, several of which are printed on every one. The note in the center of this rose, "Variation 17 degrees 45 minutes West in 1921," gives the information in regard to variation at the particular location where this rose is printed. From the statement directly below, "Annual increase 4 minutes," it will be recognized that variation is not a constant quantity, but is increasing or diminishing all the time. To calculate what the variation is in 1922, we simply must add 4 minutes to the variation as noted above.

On this compass rose there are an inner and an outer set of divisions, the inner one being in points and quarter points, and the outer in degrees. The two do not correspond—that is the North magnetic division is not pointing to zero degrees but to a division on the outer circle which is to the right or to the left of the zero division depending whether the variation is easterly or westerly. The explanation of this is that the outer divisions in degrees refer to the true North, and are known as true courses, while the inner divisions refer to the magnetic North. It is almost invariably true that when courses are given in degrees they are true courses, and that when they are given in points they are magnetic courses. The magnetic ones are far the more simpler for our use, as we need to take no account of variation whatsoever in dealing with magnetic courses. Variation comes in only when we refer to true courses.

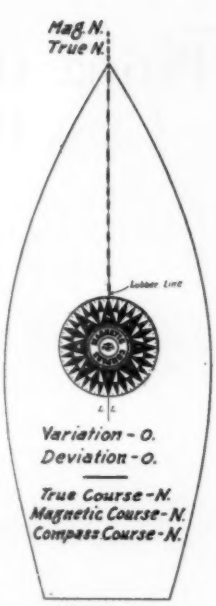


Fig. 160

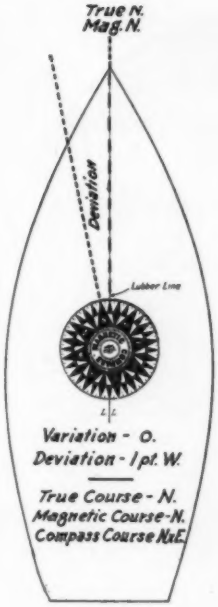


Fig. 161

Figures 160-166. *In all of these figures the boat shown is assumed to be heading true north, but with various amounts and combinations of variation and deviation. The compass card shown on the diagrams indicates the exact position which the card would take depending upon the particular amount of deviation which is specified. For example, in figure* 160, *as there is neither variation nor deviation the boat will be heading toward magnetic north, as well as true north, and the lubber line of the compass will also be opposite the north pole of the card. In figure* 161, *which has a deviation of one point, the north pole of the compass will be pulled around one point toward the left and the lubber line will be opposite the north by east point of the compass. Consequently in figure* 161 *the compass course to be steered in order to make good a magnetic course of north with one point westerly deviation will be north by east. The student should follow through all of these figures and understand the reason for each, and become thoroughly conversant with them all. When working compass problems student should always consider that his position is at the center of the compass and he is looking from this position toward the boat's bow. Easterly variation and deviation it should be remembered mean that the compass card has been swung to the right and westerly errors mean that the compass card has been swung to the left. When dealing with courses to the southward of east and west no confusion will result if the above points are remembered*

Deviation

There is one error entering into our compasses both when we talk about magnetic, as well as when referring to true courses, and this error is caused by magnetic substances such as iron and steel on our boats. The error caused by the effect which this magnetic substance has on our compass, moving the needle one way or the other, is called deviation. It exists to a greater or less degree on every motor boat. Moreover, deviation on any boat is not constant; that is, it is different in amount for every different heading of a boat.

Fig. 151 shows why this difference in the amount of deviation

(*Continued on page* 82)

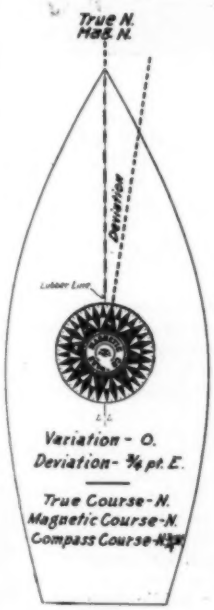


Fig. 162

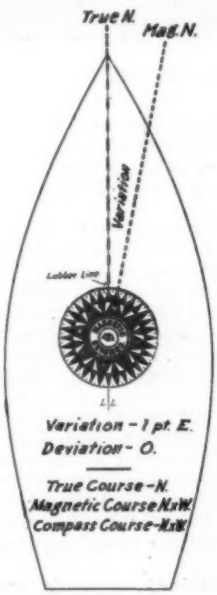


Fig. 163

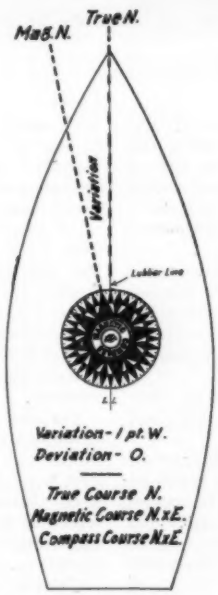


Fig. 164

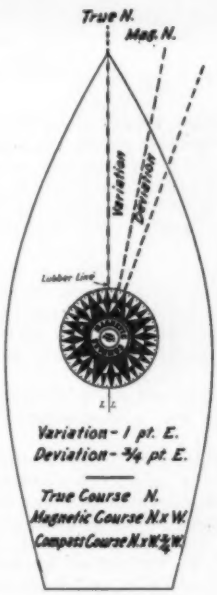


Fig. 165

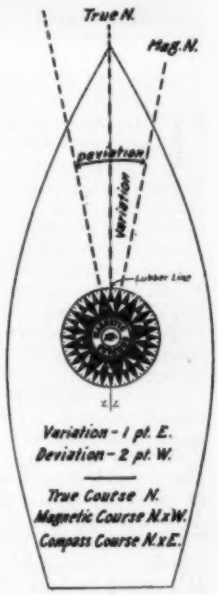
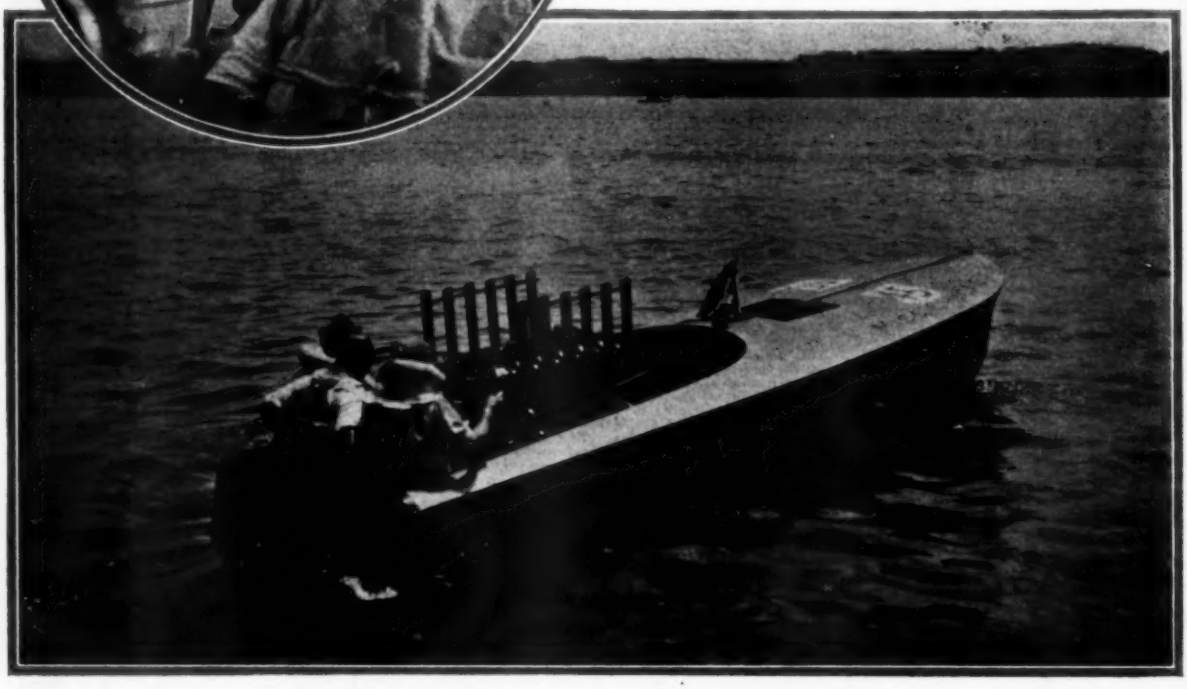


Fig. 166

Peoria the Mecca of Class Boat Racing

Miss Chicago and a Whole Flock of Little Fellows Compete in Annual Regatta of Mississippi Valley Power Boat Association

Commodore Sheldon Clark, driver and one of the owners of Miss Chicago, and his mechanician, Bernard Smith



Miss Chicago with a passenger aboard getting underway

THE Mississippi Valley Power Boat Association has once again proven its title to the claim of being the champion of the small class race boat. At the annual regatta of this association which was held this year on the Illinois River at Peoria, there were races for all classes of race boats and there was much excitement and enthusiasm in connection with them.

Commodores Tom Webb, A. T. Griffith, R. H. Daniels and W. B. Wilde, all of Peoria, with the officers of the Mississippi Valley Association, had been working ever since the 1920 regatta to make this year's event the biggest and most successful in the history of the association. They certainly succeeded.

Over 100 entries were received and while only 42 of these actually started yet there was keen competition and good sport in all classes.

On the first day Buddy, owned by Philip Becker of Peoria, took first in the 104 cubic inch class at a speed of 21 miles per hour. Buddy repeated her win on the second day by taking first at a speed of 21.75 miles per hour.

Competition in Class 151 was particularly keen. Miss Quincy IV, owned by C. E. Podgett of Quincy, Margaret III, owned by L. E. Selby of Pekin and Miss Peoria, owned by Commodore R. H. Daniels of Peoria, were all very closely matched and made a fine race. Miss Quincy IV was just nosed out by Margaret III in both heats. However, in the 215 cubic inch class, when both these boats came together again, Miss Quincy IV was the winner. Good sportsmanship prevailed at all times among the owners of these boats.

In the first heat 705 cubic inch class, Doc's, owned by Drs. L. R. Van Sant and W. B. Whipple of Peoria, was the winner by a large margin.

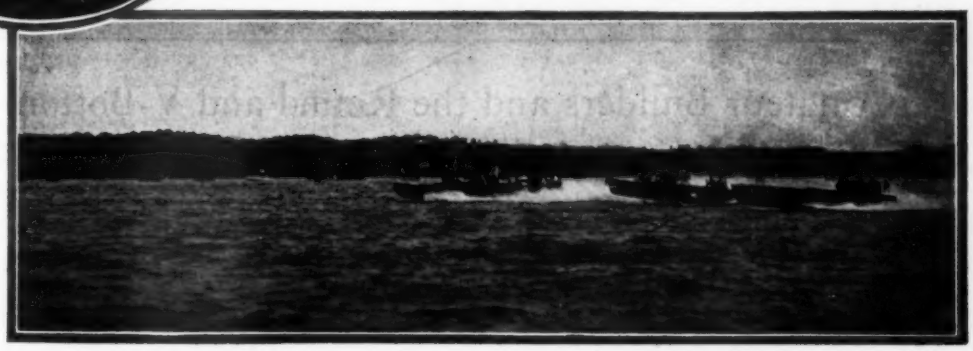
The first heat of the 320 cubic inch class was won by Ethel IX, owned by Charles P. Hanley of Muscatine, Iowa. Miss Chicago was the only competitor in the first heat for the Webb Trophy. The race was 25 miles in length and Miss Chicago's time for this distance was 26 minutes 22 seconds.

On the second day Panhard won the first heat of the runabout race, Buddy took the Class 104 finals, Black Diamond won the first heat of the 1,300 class, Cadillac IV the first heat of the 478 inch class, Alaned II the cruiser race, Miss Quincy IV the finals in the 215 class and Meteor IV won the first heat for the President's trophy. The names and times of all the competing boats will be found in the summary.

Peoria maintained its reputation for public interest in motor boat racing by turning out an enormous throng for the final day's racing. The west shore line of Peoria lake,

Tom Webb, father of speed boat racing on the Mississippi, and host to the visiting boatmen

President Collis of the Mississippi Valley Power Boat Association



Start of one of the class races

from a quarter of a mile below the finishing line of the two-and-one-half-mile course, to a point a mile and a half above, at the upper turn, was one black mass of humanity. Spectators packed the sloping banks, the strings of freight cars in the railway yards and the buildings which commanded a view of the course. The temporary amphitheatre at the finishing line which provided seats for only about 3,000 persons was simply swallowed in the huge throng.

While the heats of the two preceding days had been well contested, those of the final day were thrilling.

The 151 and 215 classes saw repetitions of the duels between Miss Margaret III, owned by L. E. Selby of Pekin and Miss Quincy IV, owned by C. E. Padgett of Quincy, with Miss Peoria, owned by R. H. Daniels of Peoria and Muggs, Peterson and Good of Moline close runners-up. Inasmuch as Margaret III took the final in the 151 and Miss Quincy that in the 215 class, it was usually conceded that she had scored over her rival. This controversy, however, will probably be settled in Chicago August 4.

The struggle between Cadillac IV (Travis, Peoria), Ethel IX (Hanley, Muscatine) and O D C (Collis, Clinton, Ia.), through the final heats of the 320 and the 478 classes had the audiences on their feet at times. Ethel IX won the 320 event by a couple of lengths over O D C, Cadillac having missed a buoy at the upper turn on the final lap and was forced to turn and complete it.

Cadillac, however, took the 478 class in a ripping finish with C M C, the Ethel hugging them both with only three lengths to the bad.

Walter B. Wilde's big four-motored, four-screw job made its first real showing on the last day. Wilde had the President's trophy won by a couple of miles over Black Diamond when his steering gear gave way on the last turn and headed for shore at full speed. Meteor was stopped without damage and Black Diamond took the heat, tying her with Meteor IV for the trophy. By agreement of drivers this was settled out of court, Black Diamond taking prize money and Wilde the trophy with its accompanying title of western river champion.

In the free-for-all for the Webb trophy Meteor IV again scored heavily. Miss Chicago led the first few laps, with Meteor a rather poor contender. Three-quarters of the way out on the 25-mile journey Miss Chicago developed spark plug trouble and was forced to a slower pace. Meteor IV took the lead at the end of the 22½ miles to the wild delight of her thousands of Peoria backers. Miss Chicago recovered her stride during the lap and rushed through the finishing stretch winner by several lengths.

A sharp squall of wind and rain just at the close of the regular program of the final day prevented the trials against time.

The annual meeting of the Mississippi Valley Boat Association occupied the attention of regatta visitors on Sunday, July 3rd. The sessions were held at the club house of the Illinois Valley Yacht and Canoe Club on upper Peoria Lake. President O. D. Collis presided. About fifteen clubs were represented. Routine business featured the meeting. The annual election of officers saw Peoria honored with the election of Walter B. Wilde as president for the coming year. E. E. Peterson of Moline was chosen to succeed A. G. Strong of Evanston as vice-president; A. T. Griffith of Peoria became secretary to succeed W. V. Kidder of La Crosse, Wis. R. A. Maples of Clinton, Iowa, succeeded himself in the office of treasurer. The executive board elected is headed by J. W. Dixon of Burlington, Iowa; O. D. Collis of Clinton, Iowa; J. W. Sackrider, Racine, Wis.; L. E. Selby, Pekin, Ill., and C. E. Padgett of Quincy, Ill.

F. G. Erickson, president of the I. B. P. A., announced that a meeting of that organization would be held in Chicago during the Pageant of Progress regatta, August 4 to 7.

(*Cont'd on p.* 74)

Commodore R. H. Daniels of the Illinois Valley Yacht and Canoe Club, the man responsible for the excellent handling of the race details

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the October Prize Contest

1. Illustrate and describe a satisfactory arrangement for a power bilge pump which can be quickly disconnected when not required.

(Suggested by A. T. M., Philadelphia, Pa.)

2. What methods have you found suitable for removing carbon from cylinders without taking motor down?

(Suggested by D. P. Newburgh, New York)

3. Describe a practical method of mooring a boat to the shore to avoid chafing of the hull where there is a rise and fall of the tide.

(Suggested by L. H. M., New York, N. Y.)

Rules for the Prize Contest

ANSWERS to the above questions for the September issue, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (a) in our hands on or before August 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before August 25. The Editor reserves the right to make such changes and suggestions in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of MoToR BoatinG of which the advertised price does not exceed $25, or a credit of $25 on any article which sells for more than that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR BoatinG of which the advertised price does not exceed $5, or a credit of $5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

Amateur Builders and the Round and V-Bottom Boat

A Discussion of the Relative Facility of Constructing a Boat In Either of the Two Popular Types

Answers to the Following Question Published in the June Issue

Discuss the round and V-bottom types purely from the standpoint of the amateur builder, taking up each step of the work (keel, framing, planking, decking, interior finish, etc.) and estimating the relative time and labor required. Finally, sum up the net percentage of time saving that may be expected in building the easier type.

V vs. Round Bottom

(The Prize-Winning Answer)

IN comparing the time and labor elements involved in the building of a round and a V bottom boat it depends upon how the V bottom boat is constructed. The real hard part of any boat for the ordinary amateur is a rabbeted keel. This probably is the best type of keel to put in any boat, whether V or round bottom. In the framing of the hull, all round bottom boats, that is in the smaller boats having steam bent frames, this necessitates making a steam box for bending the frames, and involves a lot of labor in the bending of the frames, and if not carefully done, a great waste of timber through the breaking of frames. Now in the ordinary type of construction for a V bottom boat the frames are sawn. This makes it much easier for the person building. The labor and time saved in this item is considerable. In some V bottom boats the chine is designed to be rabbeted. Now this is quite a job to get out, in fact when the chine is rabbeted you have practically three keels to get out, and, as I have said before, this is where the amateur has the most trouble. Coming to the planking on a round bottom boat, some of the planks have to be hollowed out. This takes time and patience, also your strakes are much harder to fit on a round than on a V boat.

On a V, the planking is comparatively easier provided that she has not too much hollow in her underbody. If she has and the planks are pretty light, they are liable to split in fastening them if they are not shaped. If the planking is too heavy you will never get it on without first shaping it. The garboard strake is about the hardest plank to shape and put on all the strakes. But of the two types of boats the garboard strake on the V bottom takes much less time and labor than that of the round bottom boat. If the boat has a very full deck line and excessive flare like some runabouts have, some of the strakes will have to be steamed before putting into place, as otherwise the sharp bend will split the plank. The decking as far as labor and time is concerned is just as easy to install on one type of boat as the other, that is, as far as being round or V bottom is concerned. Of course the real type of boat, whether runabout or cruiser, has a whole lot to do with it, whether the deck is canvas covered or not. Much of the effort and fitting that is necessary in laying a regular wood deck that is to be painted or varnished is done away with when canvas is used. The interior joiner work, should there be any, is a little easier to put in on the V bottom boat on account of the apparently flat sides, making it much simpler to fit the joiner work. As fitting takes up a great deal of time, a big saving is had here on the V bottom boat.

In small boats generally it is customary to allow the planking to butt up against the keel member and then fasten a false keel or keelson on the inside, on top of the keel with the edge projecting on each side. The planking is riveted or nailed to these. The type construction selected will influence the time and cost entering in the building of the boat to a large extent. The V-bottom type with chine pieces having in effect three keels will consume more time for fitting at this point.

To get the comparison down exact, a man would have to build a boat of each type, each boat being the identical size in every way, and of the same model. By model here is meant a runabout or cruiser. He would have to keep time cards and material lists for each job. The data collected in a case of this kind would be very valuable in determining differences in time and labor costs in building each type of boat.

C. A N., New York, N. Y.

Keeping the Topsides Clean and Trim

Means Adopted by Several Ingenious Boatmen to Prevent Rain Water From Streaking Their Topside Paint

Answer to the Following Question Published in the June Issue

What means have you adopted to keep rains and heavy dew from washing dust and dirt from cabin top and streaking white topsides of boat? Also give any other kinks which may be useful in keeping the boat looking clean and trim.

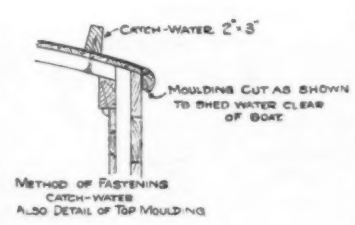
Keeping the Topsides Clean

(The Prize-Winning Answer)

WHITE is undoubtedly the most attractive color for a pleasure boat, large or small. You will generally find two or three boats at the club anchorages which are painted either black or grey and you will have a good opportunity for contrasting their appearance. The owner of the dark boat either does not have the time or the inclination to scrub down the topsides, to keep her looking clean and bright, and therefore paints the boat a dark color to hide the dirt which washes off the decks, whenever it rains, and streaks down the sides.

By preventing the water from the decks from running down the sides we can eliminate the streaking. The streaking is preventable, but it is impossible to keep the topsides clean and bright all season without an occasional scrubbing. To keep the white paint looking well all season, you must begin at fitting-out time by smoothing up and removing the old finish, and applying not less than two coats of good yacht white, either gloss or semi-gloss as preferred.

When you find a satisfactory brand of yacht white (it is made) use it every year. You cannot expect to apply several different brands of paint, one over the other, with satisfactory results. For those who prefer to mix their own paint the following can be recommended: The pigment should consist of two-thirds white lead and one-third French zinc, mixed with pure linseed oil, a little turpentine and a like amount of white damar varnish. A half-round is the usual finish at the sheer to hold the deck canvas. The water follows around this moulding to the sides, where it runs down, causing unsightly streaks. The water from the decks may be prevented from running down over the topsides in several ways. When applying the deck canvas, a special moulding as shown may be used. This moulding has a square edge from which the water will drip clear of the sides, instead of following around it. Half-round molding may be used to equal advantage by making a saw cut just below the outer side and tacking a strip of copper into the cut, allowing from 1/16 to 1/8 inch to project. Footboard without scuppers may be fitted close to the edge and drains provided as for a watertight cockpit. The special moulding to replace the half-round is shipshape in appearance, no harder to apply than half-round, and effective in still water. This moulding cannot be found in stock, and must either be gotten out special at the mill or made by hand.


CATCH-WATER 2"×3"
MOULDING CUT AS SHOWN TO SHED WATER CLEAR OF BOAT
METHOD OF FASTENING CATCH-WATER
ALSO DETAIL OF TOP MOULDING

Where a half-round finish is preferred, the moulding may be run over a fine, thin saw to cut a slot approximately ⅛ inch deep into which a narrow copper strip may be tacked with brass escutcheon pins and any openings puttied or not as seems fitting. The copper strip may be fitted without removing the moulding by closely tacking it on and then turning down the edge with a block of wood about ten inches long which will produce an even bend better than a hammer.

Foot boards fitted to the cabin roof (deck) close to the sheer will prevent the water from running over the sides in any weather. They form a gutter on the deck which carries the water to the lowest point, where it is conducted overboard through scuppers. This lowest point will be at the after-cabin bulkhead where a cant board and lead scuppers running down the corner inside the cabin are fitted. The scupper pipe is carried just below the waterline and flanged into a recess so that it is smooth with the hull, the flange being set in white lead and closely tacked to prevent leaking. On some types of boats it will require a combination of two methods to prove entirely effective.

Good yacht white will stand considerable scrubbing with soap and water without damage. Be careful in the use of soda, soap powders and scouring preparations. Soda will loosen the dirt alright, and also the paint, and many soap powders are strong in alkali, which is just as harmful. A little scouring powder may be necessary around the exhaust outlet and on obstinate spots, but its general use is not recommended.

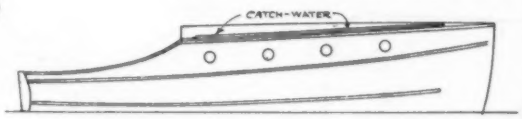
Prevent the water from the decks from running down the sides and preserve the original gloss of the paint and cleaning up will be a short job which will not have to be repeated every week to keep the topsides looking clean and bright.

W. B. M., Newburgh, N. Y.

To Keep the Boat Clean

TO keep rains and heavy dews from streaking dirt from cabin top over the white topsides of my boat, I have found nothing better than a catch-water of old familiar type such as is used on shed roofs to prevent rain water dripping over the doorway.

This catch-water is 2 inches wide and 3 inches upstanding and tapered to 1¼ inches at the top to present a neat appearance. It is placed as close to the edge of the raised deck as possible, running fore and aft from a point about 3 feet from the bow almost to the after-end of the cabin top, and is fastened down with galvanized wood screws run through the deck carlins as shown in the accompanying drawing.



A catch-water and special moulding is used by F. M. C. to keep his boat clean

This catch-water forms a valley or gutter which, owing to the natural sheer of the boat, slopes back, draining very nearly all water to a point near the cabin bulkhead before it can drain overboard. The upper and lower mouldings also are beveled off on their lower edges as shown in the drawing so that the water will leave from their lower edge instead of running down on the white paint. This combination of catch-water and beveled mouldings I have found to save a lot of discoloration of the white, and while it is impossible to shed all of the water clear of the white paint, yet it has been a great help in keeping the boat looking trim with a minimum of work.

Of course, at the after end of the catch-water where the water from the entire cabin top drains overboard some discoloration and streaking of the white occurs, but it is in a convenient location, easily reached from the cockpit, and

consequently easy to keep clean in comparison to washing down the entire hull.

To prevent rain water from running underneath the mouldings, the backs should be painted before applying. All mouldings should further be set in white lead.

One other very convenient feature is that the catch-water

Mouldings that will drip clear as suggested by W. B. M.

can be used as a hand-hold or hand-rail and by standing on the rubbing fender as shown in the sketch, one can scrub down practically the entire hull. This feature will no doubt appeal to everyone who has scrubbed down his boat while standing in the tender, holding on with one hand and scrubbing with the other. F. M. C., Phila., Pa.

Taking Up Slack in Engine Bearings

Instructions for Caring for Main and Connecting Rod Bearings and Taking Up the Wear

Answers to the Following Question Published in the June Issue

Give specific instructions, with illustrations, for taking up wear in connecting rod and crankshaft bearings

Overhauling Motor Bearings

(The Prize-Winning Answer)

IN taking up on crankshaft bearings it should always be borne in mind that the upper half of the bearing need not be disturbed, as it is subject to very little wear, also that the crankshaft should be carefully examined for scoring and calipered to see if it has worn out of round. Should it be scored, a long strip of garnet cloth or a canvas or leather belt covered with valve grinding compound should be wrapped one turn around the shaft and the ends alternately drawn back and forth until scores have been smoothed down. If crankshaft is out-of-round, the use of a simple rounding tool, especially the one described and illustrated in a previous issue of MoToR BoatinG, clamped around the shaft will true it up. After a motor having split main bearings has had the shaft trued and smoothed up, the lower halves of the bearings will then have to be shimmed up. There are two ways of doing this, one method, if bearings are but a little worn, is to use a narrow brass shim not over ½ in. wide (bearings not over 2½ inches diameter) lengthwise under the bearings, scrape off the protruding ends, blue all bearings, set up and test, then open all bearings and scrape the bright spots.

It is absolutely necessary at all times to have shims exactly one thickness under all bearings in order to preserve proper alignment of crankshaft.

Where lower bearings are considerably worn, the only practical way is to lay a narrow shim on each side of the bearing, as illustrated. This raises the bearing and pinches in the sides which are most worn. Doing this preserves the alignment of the bottom and the fitting of the bearing as worn in by the crankshaft.

The upper ends of the bearings are then scraped in to admit the crankshaft pin, and the overlap cut down to the level of the crankshaft. In cutting off the overlap of bearings, the only practical way is to tack a piece of medium sand or garnet paper on a board and rub bearing over same.

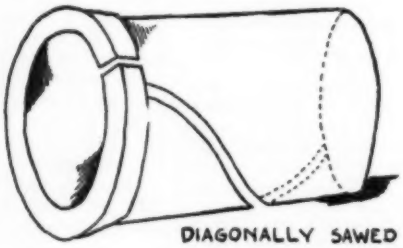
Where one-piece bronze bearings are used, these should be sawed diagonally and a light, narrow shim placed lengthwise under the bearing. Bolting the crankcase together with the bearing and shim in place will compress bearing and all parts of its circumference so that it would fit crankshaft perfectly. Slitting bearing lengthwise simply pinches bearing so that side directly opposite the slit is distorted by pressure and assumes a sharp bend so that after a little running the bearing is again loose.

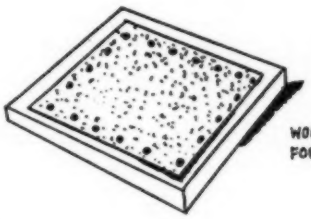
Where it is difficult to place a shim and drive bearing, it is only necessary to lamp-black the inside and diagonal saw cut of the bearing and dip same into a pot of molten tin; alternate cooling and redipping or even reheating will take care of the thickness of deposit desired.

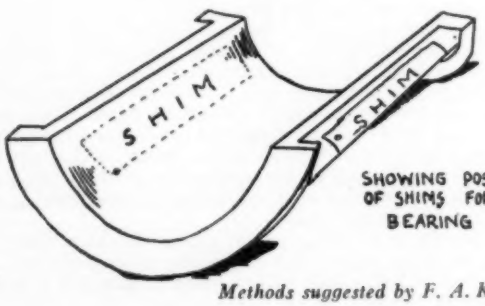
It is necessary that all sharp edges on bearings, whether oil or grease grooves, ends or joints, be slightly beveled so that oil is not scraped from bearing surfaces.

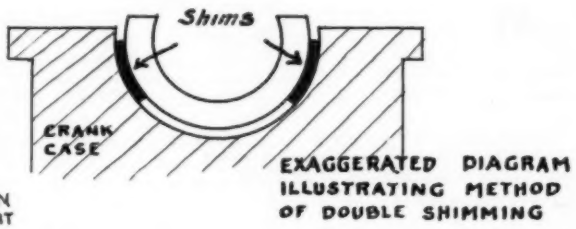
Where it happens that a motor has been partially or totally submerged, due to a leaky boat or otherwise, and the bearings flooded with water and left standing, it is necessary they all be scrapped, as the babbitt will flake, due to pitting, and fill up oil grooves.

On motors where bottom bearing lies in a strap and is shimmed, removing equal number of shims on each side, dressing down the edges of bearing on sandpaper block described above and bottom of the bearing scraped will take care of this type.









Methods suggested by F. A. K. for taking up the wear in motor bearings

On motors where bearings are pored directly into crankcase ends, the only method is to bore and ream same in a lathe, a job for a machinist only.

Connecting rod bearings are invariably of the two-piece bolted and multiple shim type. These are treated exactly like the split crankshaft bearings, the only exception being that the lower bearing is subjected to very little wear. A slight amount of play should be permitted until motor has run a little and bearing worn in, then another light shim removed and the connecting rod bearing again taken up. This assures a good bearing and is well worth the additional time and effort.

The nuts on the bolts holding the two halves together should have a spring washer under the nut and at no time should nuts be forced around so that the cotter pin hole aligns with the castellations or slots in the nuts. It is very desirable to have these nuts just tight and to use extra washers to raise nut in order to have cotter pin hole in proper relation to nut slots.

The upper half of the bearing, particularly on two-cycle engines, has two protruding lugs which are let through drilled holes in the connecting rod and then riveted to hold same in place. After bearing has become loose, these invariably shear off.

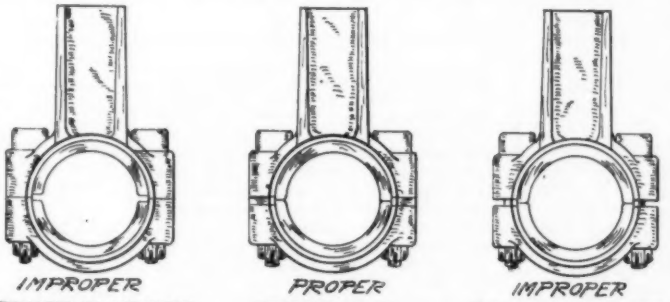
To replace lugs, drill through babbitt, cast a babbitt rod, pour molten babbitt in hole drilled in piece of wood same size as holes in connecting rod. Split wood away from cast babbitt rod and cut and use as rivet. Holes in bearing should be slightly countersunk to take up burring of rivet.

Should the wrist pin bearing be worn, the same procedure as described above for one-piece bronze bearings is to be followed. F. A. K., New York, N. Y.

Adjusting Main and Connecting Rod Bearings

DOES your motor knock when at full speed and when running slowly, regardless of the position of the spark lever? When you are sure that the trouble is not the result of pre-ignition, caused by carbon deposits in the combustion chamber, it may be assumed that lost motion exists at the connecting rod or main bearings. With the hand-hole plates removed, any lost motion in the connecting rod bearings is easily felt by moving the rod, and slack in the main bearings may be determined by using a pry under the flywheel or after motor flange.

The main bearings of any well-designed motor are proportioned to provide ample bearing surface, and they will not wear unduly when properly adjusted and lubricated. The connecting rod bearings wear more rapidly than the mains, due to a greater unit stress, and are more likely to require attention.



Correct and incorrect bearing adjustment is described by W. B. M.

Where the bearings are not worn enough to require refitting, the slack can generally be adjusted by removing one or more of the thin shims or liners provided for that purpose. A like number of shims should be removed from each side. Should there still be considerable lost motion after removing two or three thin shims from each side, it is advisable to refit the bearings. This applies to both main and connecting rod bearings.

It is not practical to give other than general directions regarding the degree of tightness for the main or connecting rod bearings, but as a guide it may be stated that when the main bearings are properly fitted and adjusted the shaft should not turn unduly hard when revolved by hand by means of the flywheel or starting crank, provided that the crank pin bearings have been slacked. When the connecting rod and piston will just fall over from slightly past a vertical position; due to the weight of the rod and piston, when the cap bolts are fully tightened the adjustment will be about right. The tightness of a bearing cannot be determined by the adjustment of the bolts. The bolts should be drawn up as tightly as possible, still the bearing should fit the shaft without undue binding.

In tightening or re-fitting a bearing it sometimes becomes necessary to remove a little metal from the bearing edges in order to allow the halves to come together properly. This is best done by laying a sheet of medium emery cloth on a surface plate or piece of plate glass, and rubbing the bearing half over it. In this way the edges will remain flat and there will be no tendency for the bearing to rock when tightened. In filing, the liability of taking down one edge or one corner more than the other is much greater. If the sides are not parallel, the bearing will grip in one spot only, and consequently will soon become loose again. The connecting rod and cap should meet firmly and evenly (with shims if provided) with just enough pressure on the bearing edges to hold them firmly. In tightening a bearing, make sure that the bolts are tight by striking them several sharp blows with a hammer and again using the wrench. The connecting rod caps should also be rapped up in like manner by using a wooden mallet or a babbitt hammer.

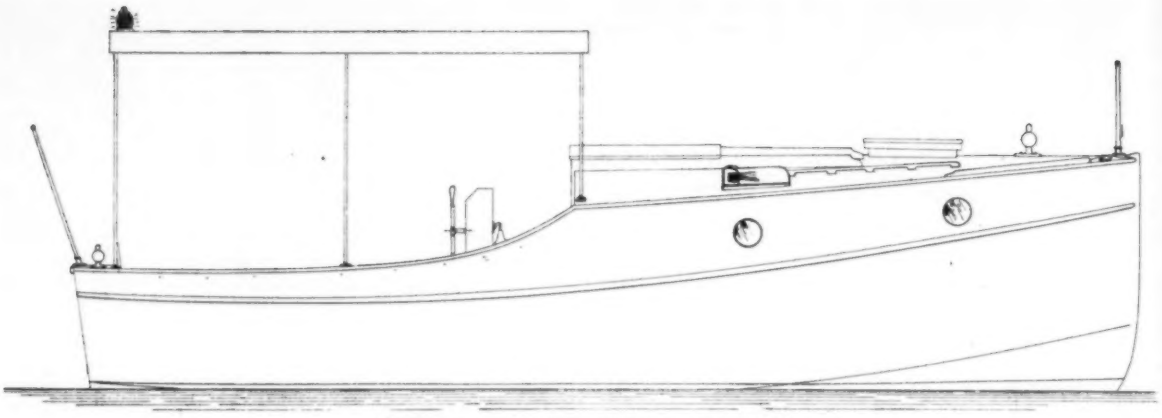
Should the bearings be found unduly loose or the crankshaft cut, due to the entrance of foreign matter or lack of lubrication, it will be necessary to refit the bearing. When the shaft is cut but slightly it may be smoothed up by the careful use of a fine file and emery cloth, or a lapping tool may be used. A lap may be made by boring a hard wood block, which should be half the bearing width to fit the shaft diameter and then cutting it in half with a fine saw. Bolts with wing nuts are the most practical means of holding the halves together and adjusting the cut. Coat the lap and crank pin with valve grinding compound, adjust to a slight degree of tightness and revolve, at the same time working it back and forth across the pin.

After the crankshaft is smoothed up, the bearing must be refitted. This may be done by scraping, but a much quicker and better job will result from the use of Timesaver Bearing Grinding Compound. This compound is mixed with oil, applied to the bearing surface, and the cap lightly set up. The motor or part is then turned by hand, the cap being taken up as looseness is apparent. This compound will not cut metals harder than bearing bronze and is soluble in oil. As it dissolves it loses its cutting power and can do no harm if not removed. Powdered Sapolio may be used in the same manner, but extreme care is then necessary that none of the Sapolio becomes bedded in the babbitt.

This grinding method is especially valuable when the crankshaft bearings are thought to be out of alignment, as only the high spots will be reduced, thus bringing the bearings back into alignment and at the same time producing a bearing surface hard to duplicate with scrapers in the hands of an experienced mechanic.

Overhauling a motor, though not a light task, is comparatively easy for the motor boatman who is mechanically inclined, and beyond the satisfaction of knowing that the work has been done properly, much enjoyment may be had from it. If convenient, it is much better to remove the motor from the boat, placing it on a bench or frame where it will be easy to get at.

W. B. M., Newburgh, N. Y.



Outboard profile of the 20-foot cruiser, Whale

Whale—A Big Little Cruiser

Complete Plans, Specifications and Instructions for Building This Sturdy Little Cruiser

Designed by Wm. J. Deed
Exclusively for MoToR BoatinG

PORPOISE, the 20-foot auxiliary cat which appeared in our series in the March issue of MoToR BoatinG proved so popular and so many requests were received asking us to have Mr. Deed design a raised deck cruiser along the same lines that we have done so and thus departed somewhat from the published list of designs which are to form this series.

Undoubtedly there is more demand for small cruisers than ever and many a gallon of midnight oil has been burned trying to produce the biggest cruiser for the money on the market. The small cruiser built in quantity and marketed in a business-like manner twelve months in the year at a moderate price is what the industry needs, and the more boat builders who get into the game the better. Also scores of young fellows would own a cruiser if their pocket-book would cover one. To them we offer Whale. Just study her design and see if she does not provide all a couple of fellows or a couple of couples need for enjoying a vacation cruise with the regular week-end cruises and afternoon runs. She is not fast, is not intended to be, for speed costs money. Seven or eight miles an hour with a good husky 8 or 10 h. p. motor at medium revolutions is Whale's speed, but you can take a run into the quiet, beautiful waters you can always reach in a few hours' trip and you can enjoy all that the millionaire in his steam yacht does, perhaps on a smaller scale, but perhaps with more real benefit.

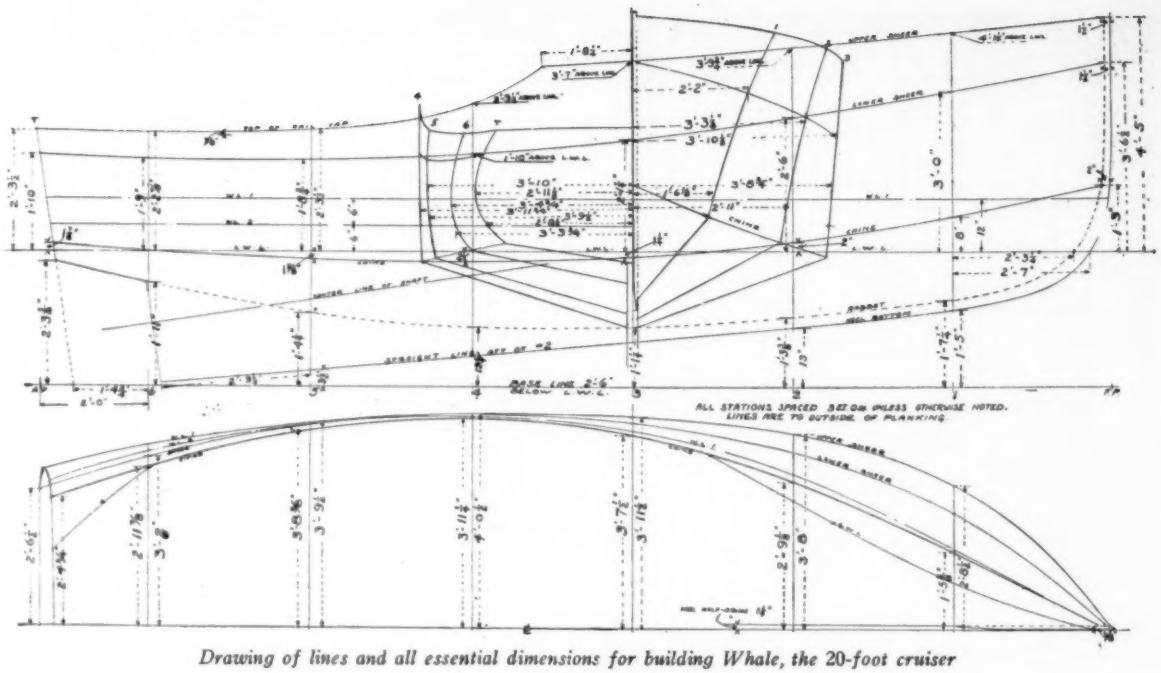
FOR those who love the water and its many incidental pleasures this little cruiser will find a ready reception. The eighth design of the present series is one of the most interesting published thus far. She is a little boat in which you may cruise in safety and comfort and explore all the distant fishing and camping grounds. While not to be compared with the big cruisers of the type of Nomad and Dolphin she contains all essentials for comfort within her capacity.

If more than two cruise, the seats in the cockpit will make berths if the fellow to occupy them is not too big around the belt. At any rate air mattresses can be carried and inflated and the cockpit floor will make a grand place to sleep—the designer's choice on many a cruise. We do not offer Whale as the ideal, the only and best small cruiser that ever happened, but we do say Whale is a good boat. If you build her yourself with the aid of your cruising mate and have close to one thousand for material, equipment, motor, etc., you can build her and have her tied to your home mooring. If you install an inexpensive motor and don't go in for fancy finish and expensive equipment it is our opinion that not much over seven hundred dollars will do the trick.

No, there isn't any lavatory, no wash basin. But this isn't a big cruiser, nor an expensive one, and furthermore, half the fun the young man of today gets is to get away from civilization and camp, where he washes out of a basin set on a stump or as he did in the A. E. F. Not that we don't believe in lavatories, but we are trying to keep down expense and plumbing is a big expense in a small boat. There are those who could not set a wash basin in the sink and they can install a folding lavatory if they can find room for it. But all the essentials of a good boat and a good cruise are found in Whale. One feature worth noting is the easy access from cockpit to cabin and vice versa. Only one little step, easy for everybody, young and old. No great high bridge deck to climb over.

There is about 5 feet headroom in the highest spot in the cabin. Not bad for a 20-footer. And she is not tender, toppy, or anything but safe. The galley is large enough for many a larger cruiser and it is convenient. There isn't any fancy joinerwork in the cabin or out of it—it's all plain and simple. The construction is very similar to that of Porpoise in the March issue of MoToR BoatinG and the instructions for building her, together with the detail instructions for building a boat as given in the February issue in our series, will apply in nearly every particular in the case of this cruiser. But the MoToR BoatinG Handbooks will give you all the detail instructions you need. If you apply them to this boat for corresponding parts you will have plain sailing, but we are always ready to help you out.

You can either bend or saw to shape the curved frames aft of midships. The straight frames are, of course, simple work. The whole job is simple. Cutting of rabbets has been omitted so far as possible. In so far as possible also we have used beams and sheathing and planks of the same size so as to make for economy and simplicity. The choice of the particular lumber to be used depends upon the locality, of course, but whatever you do, don't change



Drawing of lines and all essential dimensions for building Whale, the 20-foot cruiser

the detail of the design without first writing to the Editor about it. For there is a reason for everything in the design. And if you build Whale you'll have an economical little cruiser.

We commend this craft to the small boat builders of the country with the suggestion that they figure the profits on a couple of hundred of these little craft sold in a Spring season.

Arrangements have been made whereby those desiring full scale blue prints of the drawings for Chum, Shrimp, Nomad, Dolphin, Porpoise, Nautilus, Penguin, or Whale can secure them by addressing F. W. Horenburger, 63 West 184th Street, New York, N. Y.

SPECIFICATIONS.

In General: In carrying out the following specifications only the best of material and workmanship are to be employed. All lumber shall be air-dried, free and clear of all damaging knots, checks, sap, dry rot, etc. All fastenings not otherwise specified, best hot-dipped galvanized iron.

Boat to be built under cover protected from wind and weather. Boat to be fully protected by insurance until completion.

Dimensions of completed boat to be: Length over all, 20 feet; breadth over planking, 8 feet 1 inch; draft extreme, 2 feet 6 inches.

Keel: To be white oak or yellow pine sided 2½ inches, molded as per plan, to be in one piece rabbeted as indicated for planking.

Stem: To be white oak sided 2½ inches beveled ¾ inch and bound with ¾ inch brass half-round. Stem to be reinforced by oak apron 2½ inches thick. Apron to be secured to keel and to stem by ⅜ inch diameter galvanized rivets as shown.

Shaft Log: To be white oak sided 5 inches at top and at center line and reduced to 2½ inches where it meets keel. To be molded 7 inches.

Stern Post: To be white oak sided 5 ins. at shaft center and reduced below to siding of keel, and at top to be sided 4 inches.

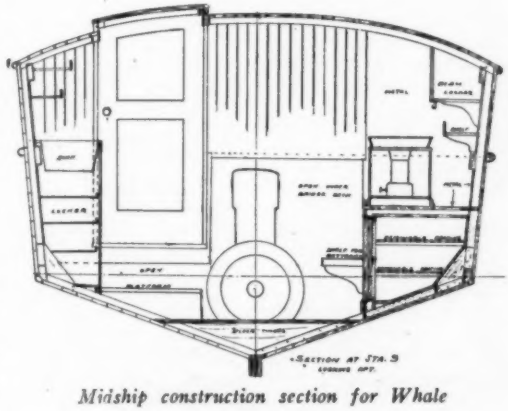
Horn Timber: To be white oak sided 5 inches and molded as per plan. Between horn timber and shaft log an oak filler 4 inches thick to be fitted. Under horn timber extending aft from Station No. 6 an oak piece 4 inches by 1 inch shall be screwed in place.

Deadwood Fastenings: Stern post, horn timber, shaft log, and keel to be carefully fitted together with surfaces well coated with white lead, clamped together and fastened by ⅜ inch diameter galvanized rivets with washers under heads at each end. Rivets carefully driven so as to clear shaft hole. Above is planned for shaft hole of 1¼ inch; increase siding of keel and shaft log accordingly if shaft hole greater than 1¼ inches is needed.

Planking: To be of white cedar to finish ⅞ inch thick. To be fastened with brass screws with heads countersunk and wood plugged. In planks over 4 inches wide three fastenings to be used instead of two. Planking to be planed and sanded to a smooth surface, caulked with yacht cotton, payed with lead paint and filled flush with white lead putty or seam composition.

Transom: Frame around edges, across top, and vertical frame piece 12 inches each side of center to be 1 inch by 2 inch oak. Transom to be double planked with two thicknesses of ⅞ inch cedar, yellow pine, or oak. Seams of outer strakes to come in center of inner strakes. To be thoroughly fastened together by brass screws with heads countersunk and plugged.

Frames: To be white oak sided 1⅛ inches, molded 1½ inches, spaced 12 inches on center, except as otherwise noted, to be secured to keel by two long galvanized boat nails. At chine a 1 inch oak reinforcing piece to be fitted, this to be notched to fit over chine log.



Midship construction section for Whale

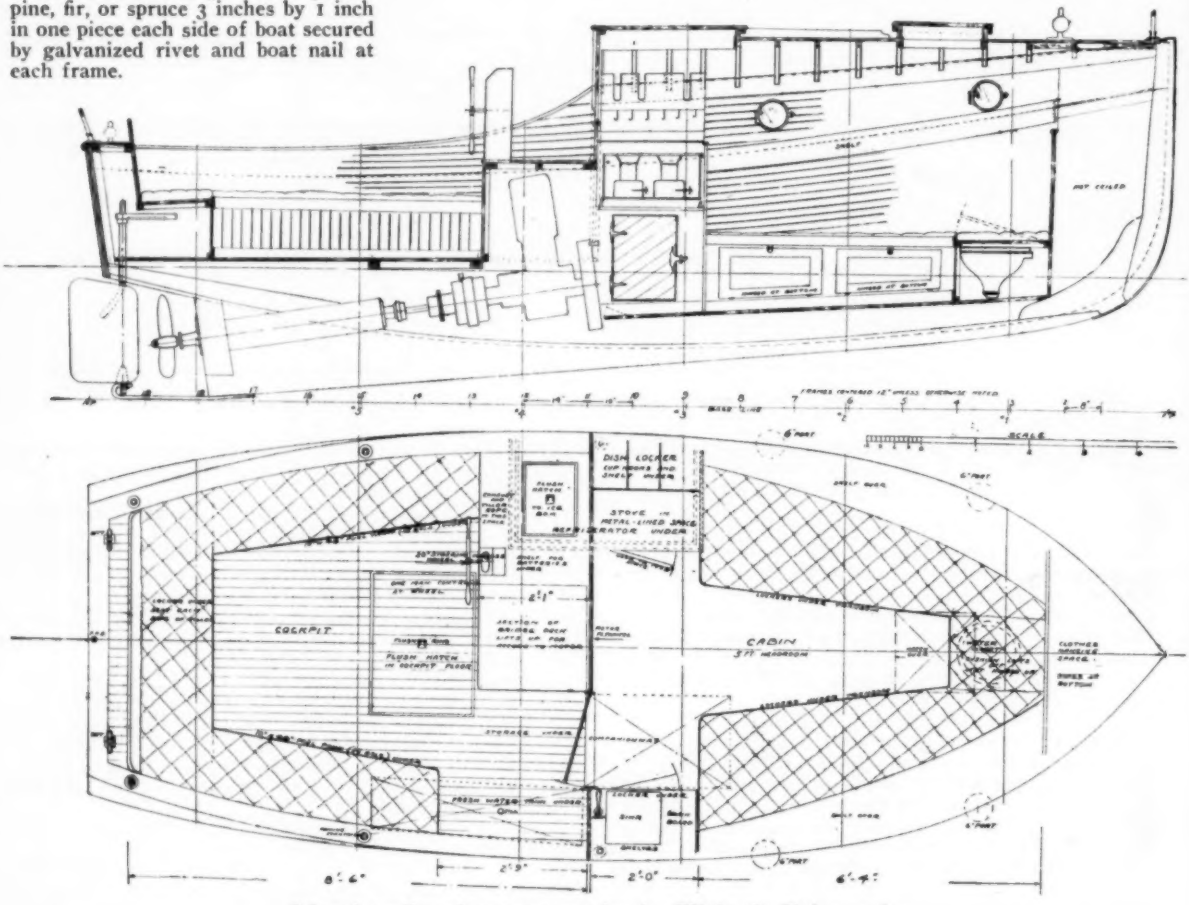
Floor Timbers: To be oak sided 1¼ inches, molded as per plan. Cabin floor laid on floor timbers except as indicated. Floor timbers to be well fastened to frames by boat nails clinched. Limbers 1 inch diameter to be bored in all floor timbers, these to line up fore and aft in a line parallel to the keel. Bottom of boat to be filled with tar pitch to level of under side of limbers. Each floor timber to be secured to keel by ⅜ inch diameter rod driven over ring.

Sheer Clamp: To be yellow pine, fir, or spruce 1 inch by 4

inches in one length each side of boat. To be well riveted to 1½ inch oak breasthook at stem and to corner blocks aft. At each frame clamp to be fastened by galvanized rivet and boat nail staggered with rivet alternately above and below nail.

Chine Log: To be oak or yellow pine 1½ inches by 4 inches. At each frame ⅜ inch rod to be riveted through reinforcing piece and chine log. At corner between planking on bottom and topsides an oak corner piece to be fitted, secured by brass screws with heads countersunk and wood plugged.

Raised Deck Clamp: To be yellow pine, fir, or spruce 3 inches by 1 inch in one piece each side of boat secured by galvanized rivet and boat nail at each frame.



Inboard profile and arrangement plan for Whale, the 20-foot cruiser

Cabin Floor: To be ¾ inch pine. In center the flooring to be cleated together to form loose board 15 inches wide.

Engine Foundations: Engine bed logs to be white oak 3 inches thick and molded as per plan from under side of engine bed to top of frames. Engine bed log to extend from frame No. 9 aft to frame No. 15. Engine bed floor timbers to be 2½ inch white oak secured to keel by ⅜ inch galvanized drift bolt. Bed log to be carefully fitted over floor timbers. Limbers to be cut in all floor timbers. Bed logs and floor timbers to be fastened together by ⅜ inch galvanized drift bolts.

Raised Deck Beams: To be of white oak sided 1⅛ inches, molded 1¾ inches, crowned and spaced as per plan. Companionway and hatch to be framed out with framing of same size. Under bitt oak filler block to be fitted. Ends of beams fastened by long boat nail.

Raised Deck Plank: To be ¾ inch tongued, grooved and V-d on under side white pine or cypress nailed to beams, heads punched in under flush, puttied, surface planed, painted with thick coat of white lead paint and covered with 10 ounce canvas laid while paint is wet, edges turned down over edge of deck and up at companionway and hatch and fastened by tacks. Around deck edge canvas covered by 1¼ inch oak half-round and at companionway and hatch covered by ⅜ inch by 3 inch oak piece. Under side of hatch coaming and companionway run coated with white lead, strip of cotton laid in same then coaming and run to be clamped down hard and fastened by long brass screws from under side of beams, heads countersunk and plugged and canvas on deck turned up on inside of coaming and tacked and covered by oak piece.

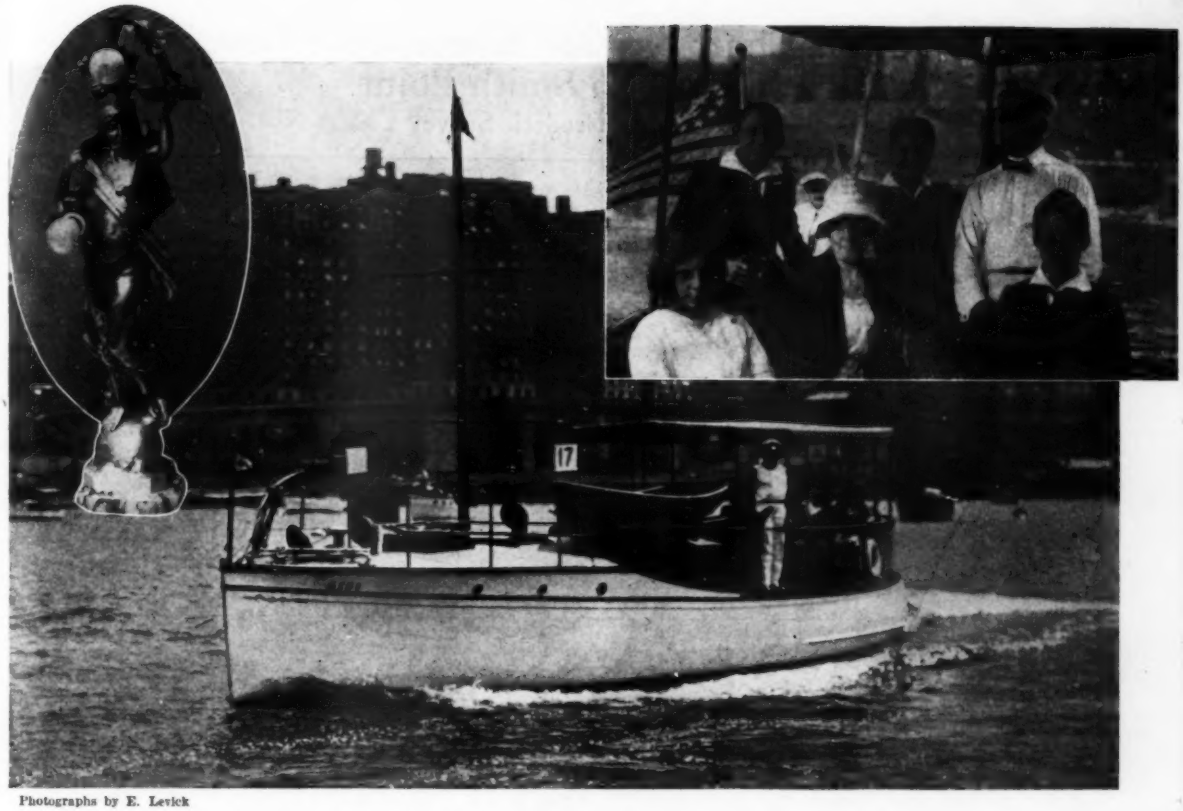
Hatch: Oak coaming 1⅛ inches thick, corners halved; cover 1⅛ inch oak tongued and grooved with 1¼ inch by 1¼ inch oak frame snugly fitted outside of hatch coaming. Hatch provided with brass hinges so that hatch cover will open and lay back on deck and with hasp and padlock on inside of hatch.

Companionway: To have 1⅛ inch oak runs, framing of oak 1¼ inches by 1¼ inches, slide of 1⅛ inch tongued and grooved oak. Door casing 1 inch oak, sill 1¼ inches forward of door and 1 inch aft of door. Door 1⅛ inch stiles and rails with ⅝ inch panels. Door to be hung on three brass or bronze fast pin butts and fitted with bronze mortise ships lock set.

Bridge Deck: To be constructed to outlines shown of beams and planking of size specified for cockpit floor. Flush hatches as indicated to be provided, each bound with 1/16 inch by 1¼ inch brass and provided with flush brass lifting ring.

Cockpit Floor: Beams to be oak 1⅛ inch by 1¾ inch spaced as per plan, without crown. Posts or stanchions of the same size to be fitted under alternate beams. Flush hatch framing same size as beams. Flooring to be 1 inch white pine laid in 2½ inch widths, blind fastened to beams, seams caulked, payed with paint, and either painted, finished bright with black marine glue seams or covered with linoleum. Hatch to have brass flush ring and brass binding. In making hatches care to be taken that ends of hatch lap onto

(*Continued on page 72*)



Photographs by E. Levick

East Still Leads in Cruiser Races

Eighteen Boats Compete in Hundred Mile Race in Revival of Cruiser Racing on the Hudson River

By F. W. Horenburger

ONE of the most interesting and successful long distance races ever held engaged the attention of Hudson River motor boatmen on July 16 and 17. Arranged by the New York Motor Boat Club, the race took the place of the annual Long Distance Race to Albany and return which has outlived its popularity. The great length of the course to Albany and return, together with the navigational difficulties at night had gradually reduced the number of entrants until it was impossible to create enough enthusiasm to warrant the race.

While cruising down the Hudson River last summer the matter of a race to Newburgh was first discussed with Commodore Scofield of the Newburgh Bay Boat Club. He outlined the wonderful advantages of stopping at Newburgh overnight and promised a glorious time to all who made the trip. The beginning in this informal way culminated in the most successful event conducted.

Plans for the race were made and in order to make it as easy as possible for the contestants a handicapping method was adopted which used the time established on the up trip as a basis for the time allowances on the return trip. This simplified the handicapping on the part of the competing boats and placed the burden of the work on the

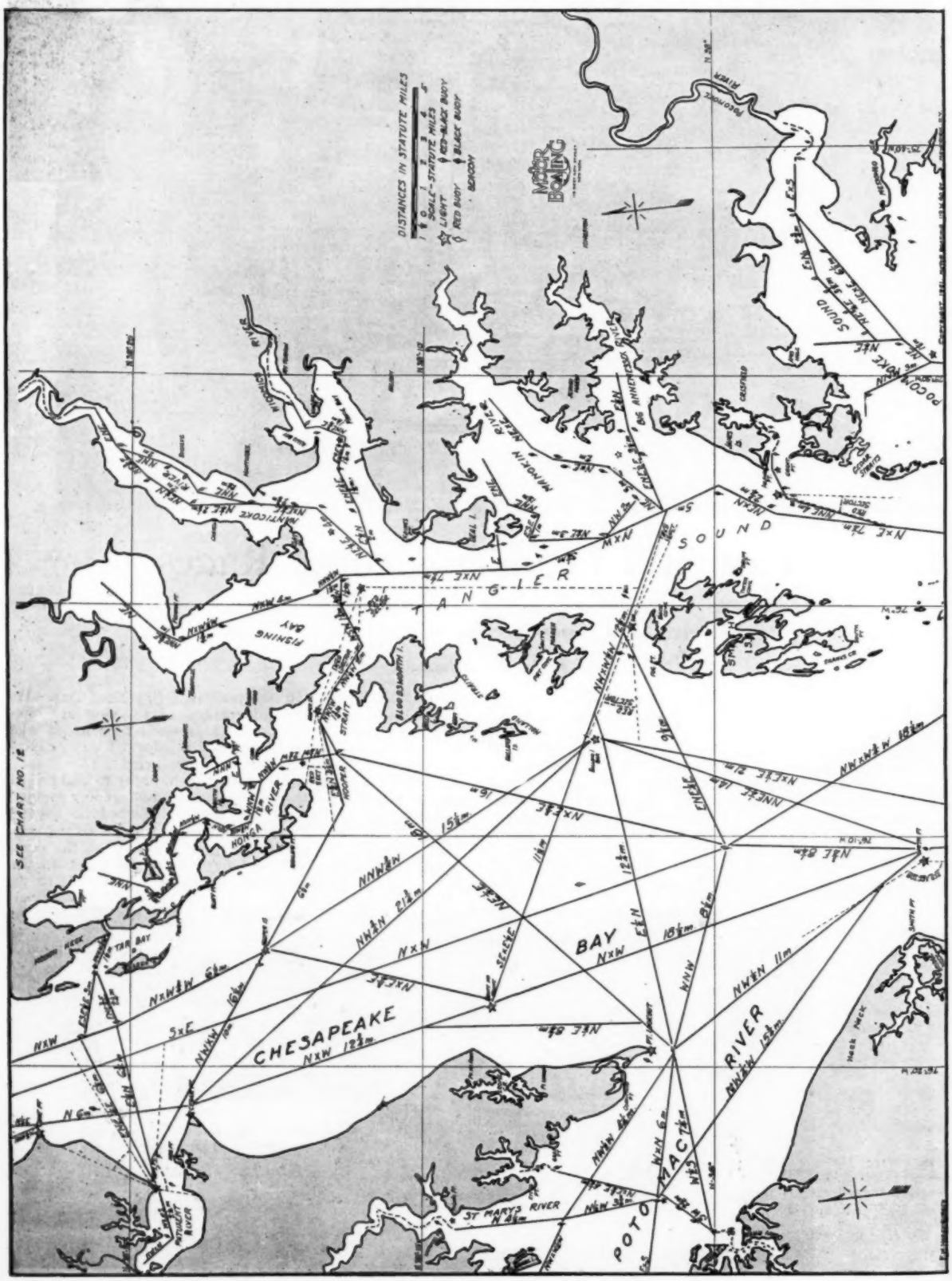
(*Continued on page* 96)

Above, Thetis, the winner of the Kieger trophy. Capt. and Mrs. T. J. Morrison with the junior crew which cheered him on

Just after the start. Boats beginning the 50-mile journey to Newburgh on the Hudson

Motor Boatmen's Chart No. 22—Chesapeake Bay, Part 3, Cove Point to Smith Point

For Use in Connection with Coast and Geodetic Survey Charts Nos. 1224 & 557



Yard and Shop

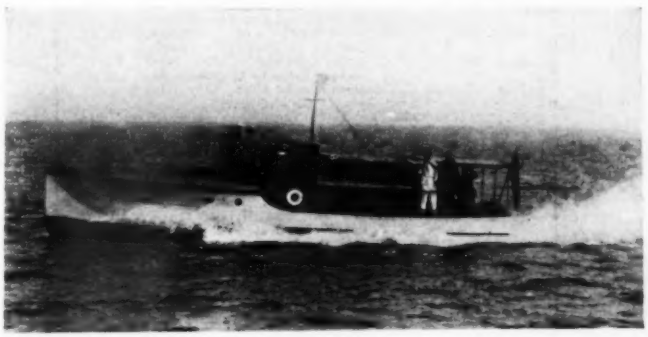
Notes of Interest to Both Owner and Manufacturer

Winifred Wins Puget Sound Race

THE express cruiser Winifred of the Seattle Yacht Club now has the reputation of not only being the fastest cruiser on the Pacific coast but also as one of the most reliable and seaworthy, having demonstrated these qualities by winning the recent long distance race from Seattle to Victoria over a course of 71 miles, part of the way against heavy groundswells and a choppy sea.

The race was staged by the Seattle Yacht Club, being an annual event for the Edgar Ames trophy, a handsome cup given to the club to promote long distance power boat racing. Five boats were entered in the contest, the handicaps being applied under the rules of the Pacific International Yachting Association, which conform to those of the American Power Boat Association. Winifred was the scratch boat, leaving 50 minutes after her keenest rival, the Sueja, overtaking her in the middle of the Straits of Juan de Fuca and beating her into the finish line off the Royal Victoria Yacht Club at Cadboro Bay by fourteen minutes. Sueja is a much larger boat than Winifred, being an 83 footer, powered with two 150-175 H. P. Speedway engines. She is owned by Capt. James Griffiths, the Commodore of the Seattle Yacht Club and Admiral of the Pacific International Yachting Association, and also made a very consistent run, coming in a close second to Winifred.

Winifred, the winner of the race, is owned by Gilbert W. Skinner of Seattle. She is 43 ft. in length, with a beam of 10 ft. and a draft of 2½ feet. Her power plant consists of a pair of 200 H. P. Hall-Scott 6-cylinder marine engines which are capable of driving her at a speed of 30.4 m. p. h. at 1500 r. p. m.



Winifred, the Seattle express cruiser which recently won the long distance race from Seattle to Victoria. Winifred is a 43-footer equipped with a pair of 200-h.p. Hall-Scott motors, which give her a speed of 30 m.p.h.

Under the requirements of the race, however, in which a number of slower boats were entered, she was required to hold her revolutions down to 1,000 so that her time over the course was by no means her maximum.

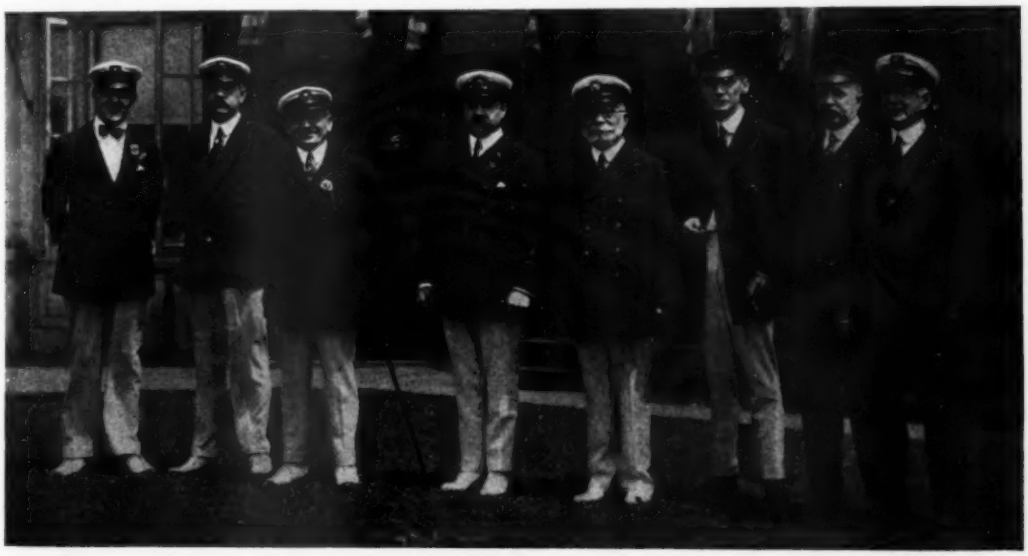
Write your representatives in Congress to support the bill introduced by Mr. Appleby, Numbered H. R. 7369. The purpose of this is to make illegal the pollution of the navigable waters of the United States by oil and other refuse matter. This is a matter which is of great concern to every motor boatman in the country as this pollution causes untold damage and annoyance.

The starting point of the race was off the entrance to the Lake Washington Canal at Seattle. Two of the boats, Zina, owned by W. F. Meachem, and Kaydee, owned by Q. H. Williams, had the same rating, and started at 6:21 A. M. Sovereign, owned by Ex-Commodore John Graham of the Seattle Yacht Club, was next away at 7:28, and Sueja followed at 9:30. Fifty minutes after Sueja was away came Winifred. A long westerly groundswell was running but the boats made good weather of this and their time from Point Wilson into Cadboro Bay, usually the most difficult part of the course, was better than on the earlier part of the run. At 12:30 P. M., with Winifred still two miles astern, Sueja overtook Sovereign and shortly afterwards passed Kaydee and Zina. Winifred continued to gain, however, and at 1:02 passed Sueja and finally crossed the finish line at 2 o'clock, beating her nearest rival by 14 minutes.

Sueja crossed at 2:14, but the other three boats did not come up until an hour afterwards, finishing pretty well bunched together, Zina crossing at 3:05, Kaydee at 3:10 and Sovereign at 3:15.

Elto Motors Use Rajah Plugs

The Elto Outboard Motor has adopted as standard equipment the new Rajah Waterproof Spark Plugs. Its waterproof qualities make it particularly suitable for outboard motors as well as for all other exposed marine engines for which purpose it was originally designed.



At the opening of the Columbia Yacht Club. The group of officers includes R. E. McAllister, E. P. Lawson, Commodores Berg, Harris and Lattgen, Measurer C. O. Gunther, H. W. Martin and G. Sawter

Fay & Bowen Prices Reduced

The Fay & Bowen Engine Company have announced a reduction in prices, effective July 15th and applying to all sizes of their engines.

A Correction

The photographs of Amiejean, the new 70-foot deep water cruiser, which were published in the July issue of MoToR BoatinG were erroneously credited to a photographer who did not make them. These pictures were made by F. G. Spencer, Jr., of Providence, Rhode Island, to whom the credit for them should have been given.

Largest Marine Railway

At Port Jefferson, Long Island, can be found the largest marine railway between Brooklyn and Boston on the east. This railway is part of the equipment of the Port Jefferson Marine Railway Company and has a capacity of 1000 tons with a draft of 15 feet. A smaller railway of 300 tons capacity and 10-foot draft can accommodate smaller vessels. The yard is equipped with every modern facility for effecting rapid repairs to yachts and commercial vessels of all sizes.

Caille Aristocrats Popular in West Indies

An order has been cabled from Point-à-Pitre, Guadaloupe, for a 4-cylinder 14 horsepower Aristocrat motor. Henry Collins, long a resident in the West Indies, is having a 27-foot runabout built locally in which he is installing this little motor. Its particular appeal is its complete enclosure and the quiet and cleanliness of operation. It is furnished with the finest equipment including a Northeast starter and generator in a single unit, a Willard storage battery, Schebler carbureter and Bosch Magneto. All controls have been brought to the dash and mounted as in automobile practice. The Aristocrat is built by the Caille Perfection Motor Company of Detroit. This is one of several Aristocrats shipped to the West Indies in the past year.

RACING DATES FOR 1921

Aug. 2	Lake Champlain Yacht Club, Burlington, Vt., Annual Regatta.
Aug. 4, 5, 6, 7	Pageant of Progress Races, Chicago, Ill., all classes.
Aug. 6	New York Athletic Club, Cruiser Championship Race to Shelter Island.
Aug. 11	New York Motor Boat Club, Kieger Trophy Race.
Aug. 11, 12, 13	Fisher Trophy Races at Buffalo, N. Y.
Aug. 13	New Rochelle Yacht Club, Cruiser Race to Stratford Shoal and return.
Aug. 13, 14	Port Washington and return. Rockaway Park Yacht Club.
Aug. 17, 18, 19	Thousand Islands Challenge Cup Races on the St. Lawrence River.
Aug. 20	Orienta Yacht Club, water sports at Lloyd's Harbor, New York.
Aug. 20	Colonial Yacht Club, New York, Cruiser Race to Cornfield Reef Light.
Aug. 27	Harlem Yacht Club, City Island, open races, all classes.
Aug. 27, 29, 30	The Gold Cup, One Mile Championship, and Wood - Fisher Trophy Races at Detroit.
Sept. 3	New York Athletic Club, Navigation Race.
Sept. 5	Wilmington M. B. Club Record Cruiser Trophy Race.
Sept. 3, 5, 6	Races for the British International Trophy at Detroit.
Sept. 5, 6, 7	Motor Boat Races at Toronto.
Sept. 10	Hudson River Yacht Club, New York, Open Races, all classes.
Sept. 10	Philadelphia Y. C., Essington to Reedy Island and return.
Sept. 18	Tamaqua Yacht Club, Ocean Cruiser Race.
Sept. 18	Old Orchard Shoal, Belle Harbor Yacht Club.

A. G. Griese Speedway Agent

A. G. Griese, 30 Church Street, New York, N. Y., has been appointed exclusive Eastern Sales Agent by the Consolidated Shipbuilding Corporation, for their famous Speedway gasoline engines, medium and high duty.

The Consolidated Shipbuilding Corporation, Morris Heights, New York City, are the originators and manufacturers of Speedway engines. In the past they produced just enough engines for use in the hulls of their build, save a limited number for stock. At the present time, however, their facilities will allow them to manufacture four times their usual output without even attempting to manufacture their motors on a production basis.

Busy at Skaneateles

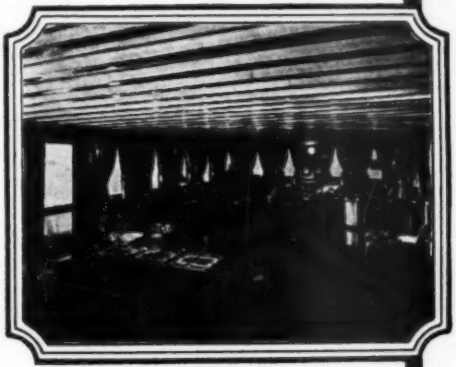
While many boat builders are complaining for lack of business the Skaneateles Boat & Canoe Co., of Skaneateles, N. Y., are complaining for lack of time. Their shops have been working overtime all summer to keep up with the demand for their product. For a stretch of two weeks in the month of June, twenty-two men were actively employed in their shipping department, shipping rowboats, sailboats and outboard motor boats. Their entire line of St. Lawrence skiffs are practically sold out and so great has been the demand for their outboard motor boats that they have had their entire force of boat builders building nothing but this model.

This company equips most of their boats with the Evinrude motor and so great has been their demand upon the Evinrude people the past few weeks that they have been unable to allot them motors fast enough to keep up with their demand.

Were it not for the fact that the Skaneateles people build these boats upon a standard production basis they would not be able to build them for one hundred dollars more than the present selling price. They absolutely guarantee their outboard motor boat as the best in the world for the money and are willing at all times to leave it to the buyer to be the judge.

(*Continued on page* 86)

Beb II, the 32 *by* 6*-foot* 6*-inch V-bottom runabout owned by Herbert Gans of New York City. The boat was designed and built by the Albany Boat Corp. and powered with a* 200*-H.P. Hall-Scott marine engine which drives her at* 36 *m.p.h.*



The Harmony—an exceptionally comfortable houseboat owned by Mr. T. H. Symington, of New York, is shown at top. Below is an interior view of the new deckhouse, built of Philippine mahogany.

—and here is *Harmony*

Owned by Mr. T. H. Symington, of New York, and recently remodelled in the yards of A. Pelsang at Miami, the magnificent 98-by-22 foot houseboat, *Harmony,* with her roomy new deckhouse of Philippine mahogany, is as handsome and comfortable a dwelling place as one could possibly desire.

And despite *Harmony's* constant exposure to sun and wind and water, she is always in the pink of condition. This is partly due to the excellent care she receives, but mainly to the fine materials with which she was constructed and finished.

Naturally, the varnish plays an important part. And it is interesting to note that both inside and outside, *Harmony* is—

Valsparred, of course!

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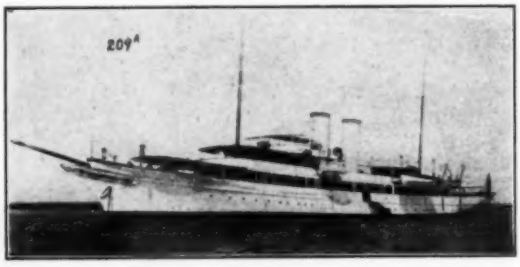
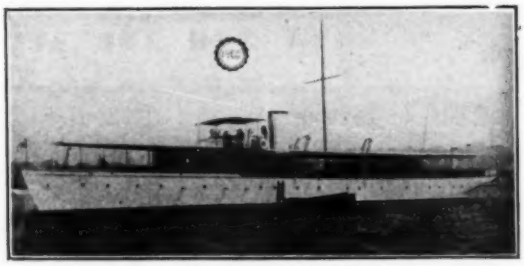
NAVAL ARCHITECTS—MARINE INSURANCE—YACHT BROKERS

15 WILLIAM STREET, NEW YORK

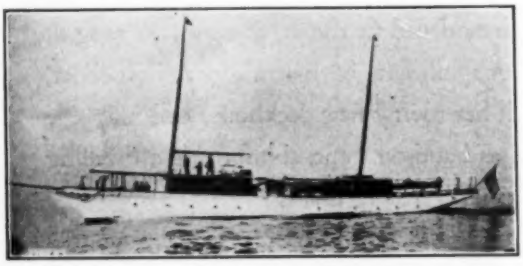
Complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



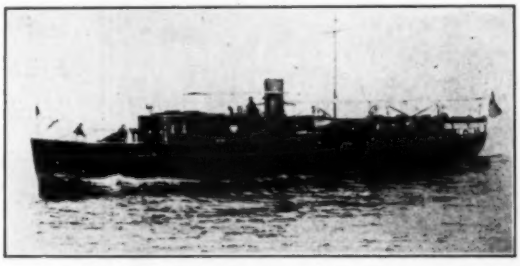
No. 209—For Sale or Charter—Large seagoing steam yacht. Exceptional speed. Roomy accommodation. Completely reconditioned recently. Unusual opportunity. Cox & Stevens, 15 William Street, New York.



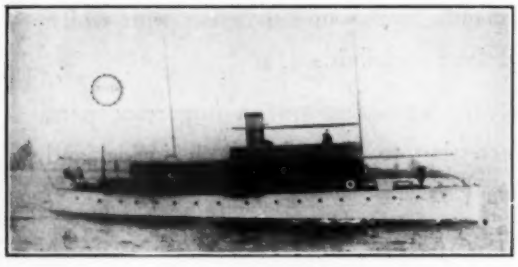
No. 1466—For Sale or Charter—Particularly desirable 140 ft. twin-screw steel cruising power yacht. Speed up to 18 miles; two 300 H.P. Standard motors. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense. In splendid condition. Cox & Stevens, 15 William Street, New York.



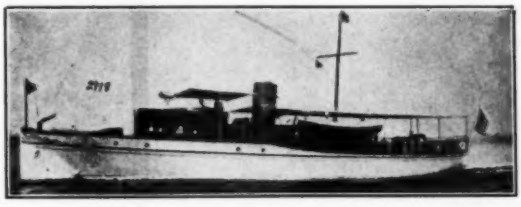
No. 40—For Sale or Charter—Flush deck steel steam yacht, 140 x 18 x 7.6 ft. draft. Has two deck houses, after one being used as a social hall. Quarters handsomely furnished and well laid out. Boiler and engine new 1916. Speed up to 14 miles. Cox & Stevens, 15 William Street, New York.



No. 2666—For Sale—Twin-screw cruising power yacht; 100 x 16.6 x 4.6 ft. Speed 10-11 miles; two 60/70 H.P. "20th Century" Motors. Dining saloon in deckhouse, three double and two single staterooms, main saloon, bathroom and two toilets, galley on deck, etc. Exceptionally roomy craft. Beautifully finished. Cox & Stevens, 15 William Street, New York.



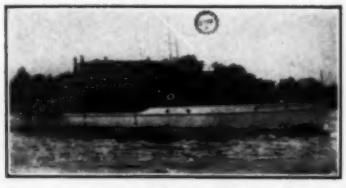
No. 2247—For Sale or Charter—Able twin-screw cruising power yacht; 89 x 15.3 x 4.9 ft. draft. Speed 12 miles. Two 80 H.P. Winton motors. Dining saloon, main saloon, three staterooms, two bathrooms and three toilets. Excellent condition. Low price. Cox & Stevens, 15 William Street, New York.



No. 2978—For Sale—Desirable twin-screw cruising power yacht; 80 x 14 x 4 ft. Speed 13 miles; two 50/60 H.P. Twentieth Century motors new 1919. Dining saloon, two double staterooms, bathroom and two toilets, galley, etc. Recently thoroughly overhauled at large expense. Cox & Stevens, 15 William Street, New York.

No. 3151—For Sale or Charter—Particularly desirable twin-screw houseboat; 77 x 17.6 x 3 ft. Speed 11 miles; two 6 cyl. 60-70 H.P. Standard motors new 1919. Large deckhouse containing social hall; main saloon, two double and two single staterooms, two bath and toilet rooms, etc. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.

No. 3477—For Sale—Fast bridge deck cruiser; 43 x 9 x 3.6 ft. Speed up to 17 miles; 130/150 H.P. 6 cyl. Speedway Motor. Saloon, double stateroom, two toilets, galley, etc. Splendid boat for ferry or day service. Price low. Cox & Stevens, 15 William Street, New York.



No. 2714—For Sale—Cruising power yacht; 62 x 11.6 x 3.9 ft. Speed 11 miles. 40-60 H.P. motor. Two saloons each with two berths. Double stateroom, bath and toilet room. Handsomely finished. Bargain for quick sale. Cox & Stevens, 15 William Street, New York.

Advertising Index will be found on page 110

NAVAL ARCHITECTS
ENGINEERS
YACHT BROKERS
MARINE INSURANCE

HENRY J. GIELOW, Inc.

25 WEST 43rd STREET, NEW YORK

Tel.: Murray Hill 9134
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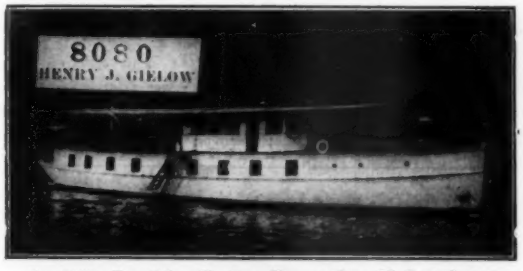
A.B.C. Code

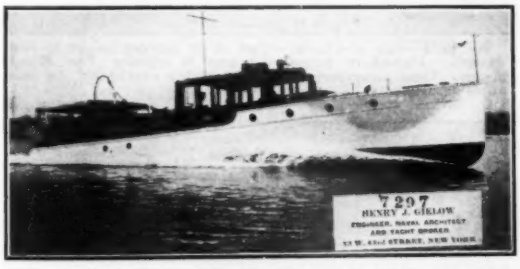
Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

We have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in our office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. We are in a position to submit full information on any type of boat upon request.

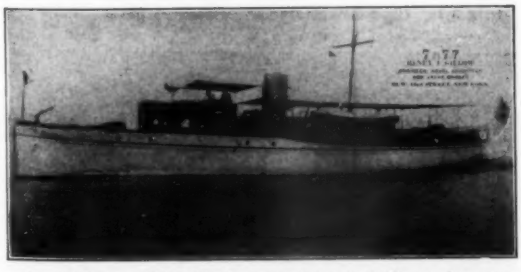
No. 8165—For Sale—Consider 50-60 ft. auxiliary part payment. New houseboat 45 x 13 x 3. Speed 9 miles. In commission. Double and single stateroom, saloon and bath. Also deck saloon. Delco lighting plant. All complete and perfect condition. Henry J. Gielow, Inc., 25 W. 43rd Street, New York City.



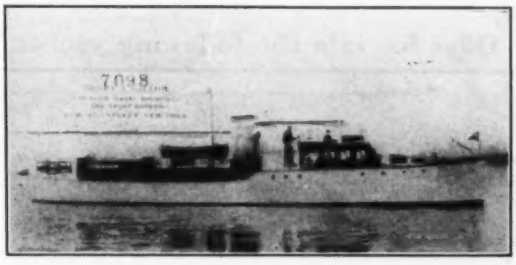
No. 8080—For Sale—Charter—New modern 85 ft. twin-screw cruising houseboat. Deck dining saloon and galley. 2 double, 3 single staterooms. Hot water heat, 3 baths. Shoal draught makes attractive type Florida cruising. Two 50 horsepower motors give speed 10 miles. Good sea boat. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7297—For Sale—Attractive high grade 48 ft. twin-screw express cruiser. New Van Blerck motors and upholstery 1920. Speed 21-24 miles. Excellent sea boat through shoal draught, and desirable for Southern and Northern use. Two cabins and separate galley. Crew forward. Bridge deck enclosed in removable glass partition. Cockpit aft. Modern in all appointments. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

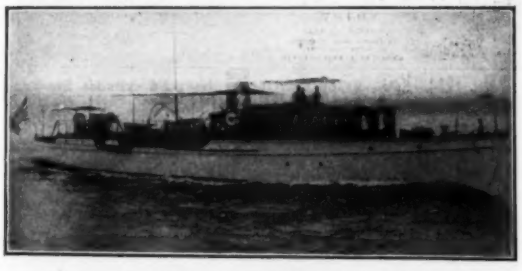


No. 7077—For Sale—Particularly desirable 80-foot twin-screw power yacht. "20th Century" 50/60 H.P. motors, new 1919. Deck dining room, two double staterooms, bathroom. All furnishings and equipment new 1919. Excellent condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7098—For Sale—Bargain modern 72 ft. Lawley built twin-screw motor yacht of recent build. Speed 12 to 14 knots; two 6 cyl. 150 H.P. Winton motors. Two double staterooms, bathroom and two toilets. Deck dining saloon. Owner anxious to sell. Henry J. Gielow, Inc., 25 W. 43rd Street, New York City.

No. 7002—For Sale or Charter—Finest yacht of type available. 138 ft. twin-screw power yacht. Two 300 H.P. Standard engines. Dining room and social hall on deck; three double and one single staterooms; two bathrooms. All furnishings new 1920. Henry J Gielow, Inc., 25 W. 43rd St., New York City.



No. 7040—For Sale—Bargain—Modern Lawley built 96 ft. twin-screw motor yacht. 15 ft. beam. Standard motors. Speed 11 miles. Deck dining saloon, 2 double staterooms. Accommodate seven. Economical, can run with 4 crew. Able sea boat. Furnishings new 1919, includes player piano. Large bridge and good deck space. Fine condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

No. 7165—For Sale—Finest and roomiest 66' raised deck cruiser, two double staterooms, bathroom, large deck dining saloon, unusual amount of deck space, equipped with new 75 H.P. motor, interior finished in mahogny and cream. Excellent sea boat. Owner has purchased larger yacht, act quickly. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

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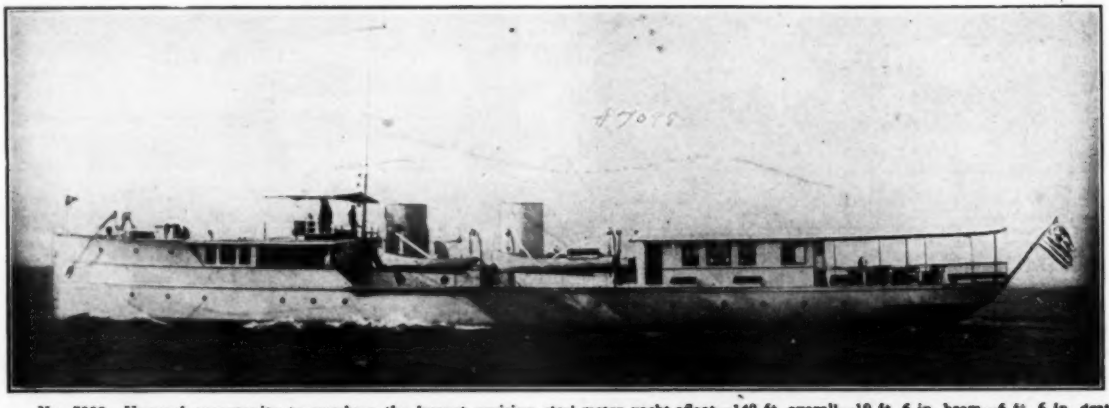
NAVAL ARCHITECTS AND YACHT BROKERS

Telephone 4510 John

52 Pine Street New York City

Offer for sale the following yachts, some of which are available for charter



No. 7098—Unusual opportunity to purchase the largest cruising steel motor yacht afloat—140 ft. overall—19 ft. 6 in. beam—6 ft. 6 in. dratt. Designed by Tams, Lemoine & Crane and built by Lawley. An exceptionally able yacht. Triple screw having three 6 cylinder. Speedway motors. Gasoline consumption low. Speed 16 miles per hour. Large cruising radius. Has very commodious owners' quarters attractively fitted and furnished. In absolutely A-1 shape throughout.

No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors. Speed 21½ miles. All modern conveniences.

No. 9078—Sale or Charter—Fast 48 ft. express cruiser in commission. Immediate delivery—2 new 6 cylinder Van Blerck motors. Good accommodations. Thoroughly overhauled last year in all departments.

No. 8102—Sale—Charter; most desirable raised deck cruiser available. Practically new. 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles. Electric light, hot water, heat and refrigerating plant.

No. 9075—For Sale—Desirable raised deck cruiser 70 ft. x 11 ft. x 4 ft. Good accommodations. Speed 23 miles.

No. 8978—For Sale—Raised deck semi day cruiser. 200 H.P. Sterling motor. Speed 20 miles per hour. In the very best of condition. Price reasonable. Full particulars and plans from Tams, Lemoine & Crane, 52 Pine Street, New York.

No. 1927—Sale—Charter—Very desirable, twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.

Advertising Index will be found on page 110

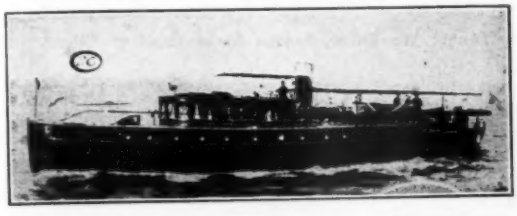
EDWARD P. FARLEY CO.,

6 N. Michigan Avenue, Chicago, Ill.
Telephone State 6494

Naval Architects, Yacht Brokers, Surveying, Marine Insurance

We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter

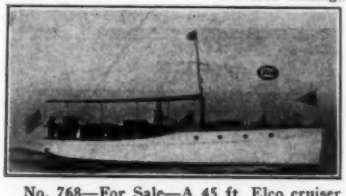
Plans, Photographs and full particulars furnished on request



No. 26—For Sale—100 ft. twin-screw power yacht of recent construction and thoroughly modern in all details. Has exceptional accommodations consisting of three double and two single staterooms, dining saloon in deckhouse forward. An able and comfortable cruiser. Edward P. Farley Company, 6 North Michigan Ave., Chicago, Ill.

No. 573—For Sale—91 ft. x 14 ft. x 4 ft. 3 in. twin-screw gas yacht. Built 1917. Winton motors. Speed up to sixteen miles. Roomy accommodations with every convenience. In excellent condition. Equipment of the best. Edward P. Farley Company, 6 North Michigan Ave., Chicago, Ill.

No. 38—For Sale—78 ft. Lawley built cruiser. Winton motor. Two commodious double staterooms. Two toilets. Dining saloon in deckhouse forward. A very able and modern boat. Edward P. Farley Company, 6 North Michigan Avenue, Chicago, Ill.



No. 768—For Sale—A 45 ft. Elco cruiser of excellent construction. Fully equipped for cruising. Accommodations consist of double stateroom aft; main saloon forward, with four berths, two toilets, large galley, etc. Motor controls from bridge. Edward P. Farley Co., 6 North Michigan Ave., Chicago, Ill.

No. 1018—For Sale—54 ft. twin-screw cruiser, express type. Speed 21-24 miles per hour. Two double staterooms, main saloon, two toilets, etc. Complete equipment. Edward P. Farley Company, 6 North Michigan Ave., Chicago, Ill.

Telephone Connection

Suite 401

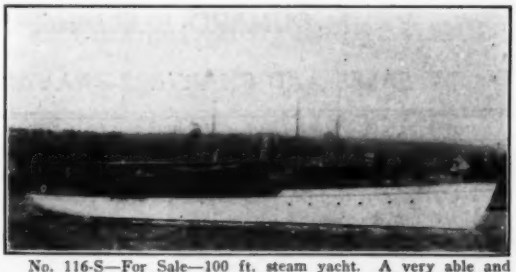
R. M. HADDOCK

NAVAL ARCHITECT and YACHT BROKER

50 East 42nd Street, New York

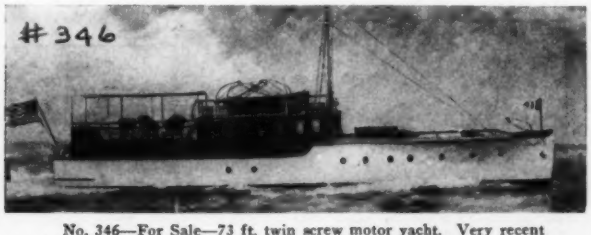
Marine Insurance

No. 215—For Sale—Attractive 98 ft. houseboat, built in 1919. Has 4 single and 2 double staterooms, bath, etc. Has 125 h.p. Murray & Tregurtha engine. Economical cruiser 9 miles per hour on 8 gallons of gas. Built for and now located in Florida. Price reasonable. 20 ft. beam and 3 ft. draft. For particulars apply to R. M. Haddock, 50 East 42nd St., New York City.



No. 116-S—For Sale—100 ft. steam yacht. A very able and seaworthy boat. Sleeps 7 in owner's quarters. Speed 12 to 14 knots. 1 h.p. 325. For further information apply to R. M. Haddock, 50 East 42nd St., New York City.

No. 418—For Sale—45 ft. Express cruiser; "V" bottom type. 150 h.p. engine. Boat built in 1916, engine 1920. Speed 18 miles. 4 in owner's party. Price reasonable. R. M. Haddock, 50 East 42nd St., New York City.



No. 346—For Sale—73 ft. twin screw motor yacht. Very recent build and most completely equipped. Two 200 Speedway motors; accommodates 8 in owner's party. Glass deck-house, single and double staterooms. Speed 20 m.p.h. For particulars apply to R. M. Haddock, 50 East 42nd St., New York City.

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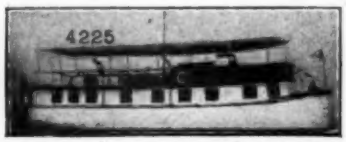
No. 2031 — 40 foot V-Bottom cruiser. Double stateroom, two upper and two lower berths in main cabin. 60-85 H.P. Sterling motor. Speed 12-15 knots.



No. 4225—Sale or Charter—51 foot power houseboat. Three staterooms, main saloon, toilet. 32-37 H.P. Standard motor. Speed 8 miles. Electric lights. Very comfortable boat.

No. 2093—52 foot express cruiser. Double stateroom. Main cabin with four berths. Two toilets. Two berths and toilet for crew. 200 H.P. Sterling motor. Speed 24 miles.

No. 4322—Sale or Charter—Twin-screw 85 foot power houseboat. Five staterooms, dining saloon, three baths, etc. Speed 10 miles.

No. 1899—63 foot power yacht. One double and one single stateroom. Two Pullman berths in saloon. Toilet and bath. 70-90 H.P. Standard motor. Speed 15 miles. Electric lights, etc.

No. 2136—Sale or Charter—Twin-screw 80 foot power yacht. Two double staterooms, dining saloon, etc. Two 220 H.P. Standard motors. Speed up to 21 miles.

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CUNARD BUILDING, 25 BROADWAY, NEW YORK

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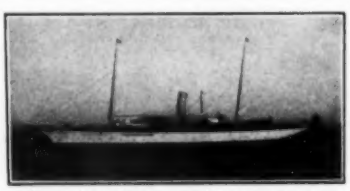
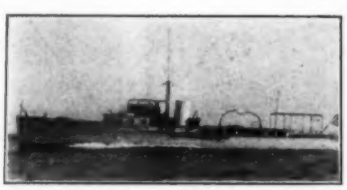
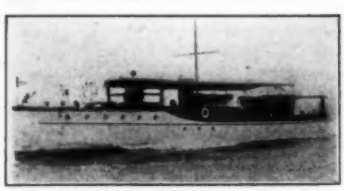
SALES AND CHARTERS—NAVAL ARCHITECTURE—MARINE INSURANCE



No. 1236—200 ft. steel sea going steam yacht. Best design and build. A-1 condition throughout. Oil burning. One of the finest vessels in the fleet. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.



No. 5186—Sale or Charter—85 ft. twin screw Express cruiser. Lawley Build. Practically new. Excellent accommodations. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.



No. 1986—88 ft. power yacht. Twin screw. Good speed. Exceptional opportunity. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.

No. 4084—For Sale or Charter—One of the Mathis 75 ft. power house yachts. Exceptional accommodations. Splendid motors. In commission. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.

No. 1071—60 ft. express cruiser. V bottom. Twin screw. Speed up to 27 miles. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.

No. 6583—One of the Elco 45 ft. cruisers, in commission. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.

Advertising Index will be found on page 110

WILLIAM GARDNER
F. M. HOYT

WILLIAM GARDNER & CO.

PHILIP LEVENTHAL
W. T. HOLLEY

Naval Architects, Marine Engineers and Yacht Brokers

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8638 Bowling Green

1 Broadway, New York

Cable Address
Yachting, N. Y.

We have a complete list of Yachts of every description for sale and charter

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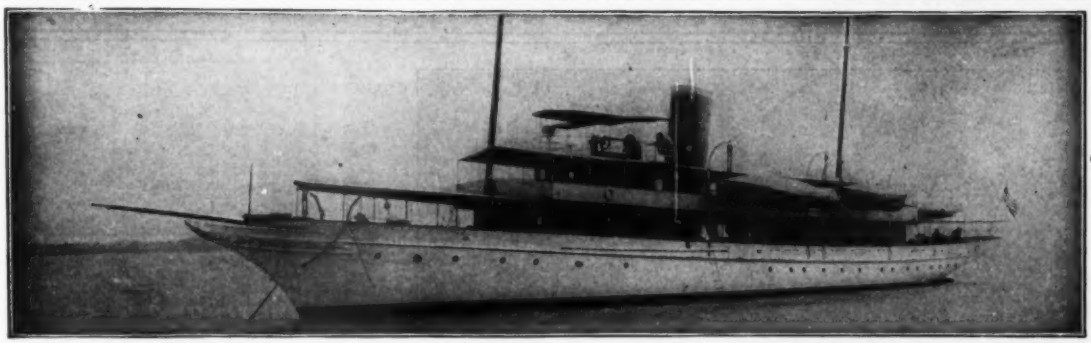


No. 659—Steel steam yacht, deep sea type, 187 x 24 x 10. Of best construction throughout, and of recent build from our designs. Promenade deck full width of boat. Has two large deck houses, with chart house and Captain's room on upper deck. Finely appointed owner's and guests' quarters. Was not used in Government Service. In best possible condition and should be seen to be fully appreciated. Inspection invited.

No. 2438—Handsome Express Cruiser, 87 x 12.2; mahogany planking; two 8 cylinder Speedway motors, speed 20/25 miles. Built under our supervision.

No. 25[illegible]—Patrol type. Twin-screw express cruiser, 60 x 10. Two 6 cylinder motors. Speed 25 knots. Very reasonable figure.

No. 2044—Bridge deck cruiser, 63 x 13.6 x 4. Twentieth Century motor, 4 cylinder. Speed 11/12 miles. Attractive interior arrangement.

No. 8100—For sale or charter, 100 ft. steam houseboat. Large lounging room and dining room. Three double and three single staterooms. Two bathrooms. Hot and cold running water. Ice machine installed 1921. Hull, engine and boiler overhauled 1921. Further particulars from Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

Sterling
THE ENGINE of REFINEMENT
For the finest boats that float

Rebuilt at factory and guaranteed

1-6 cyl. 70 H.P. heavy duty
1-8 cyl. (FS) 200 H.P. high speed

Sterling Engine Co. Buffalo, N.Y.

REBUILT MOTORS

The Engine You Want at the Price You Want to Pay

We carry in stock inboard and outboard motors ranging from 1 to 600 H.P., of all types. These machines are honestly rebuilt in our own shops and sold with an IRON-CLAD GUARANTEE. We recently announced a reduction of 20% in the price of these engines, which brings the prices in most cases down to about 40% of Their Original Cost.

Write us for our Bargain List—it will be sent anywhere on request.

BRUNS, KIMBALL & CO.

153-155-157-159 West 15th Street New York City

We also are distributors of and carry a stock of the following NEW motors —the finest built in this country—

Sterling	Kermath	Murray & Tregurtha	Missouri
Gray-Prior	Peerless	Wolverine	Roberts
Frisbie	Arrow	Doman	

Rebuilt Marine Engines

IN CHICAGO

These engines are completely overhauled, rebuilt and refinished by our marine engine experts. Look like new, run like new, and are thoroughly guaranteed. Here's a chance to get a high-grade motor at a big saving.

Our present stock includes Sterlings, Domans, Grays, Buffalos, etc., taken in trade for new engines. Write today for latest list if you want a real bargain.

W. L. MASTERS & COMPANY

231 North State Street Chicago, Illinois

Agents for Sterling, Scripps, Frisbie, Kermath, Universal, Gray & Evinrude Motors.
New engines and repair parts always in stock.

THE MOTOR BOATING MARKET PLACE

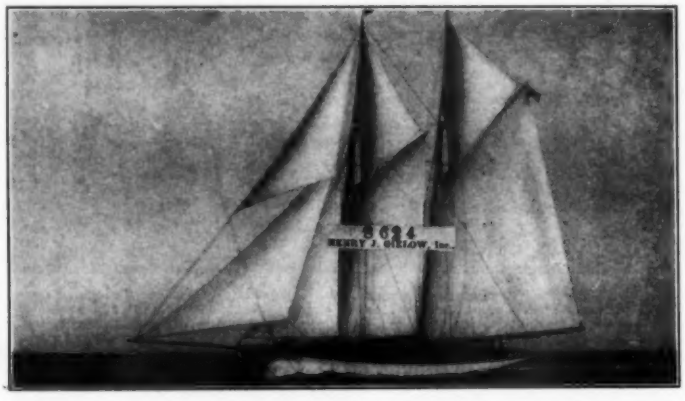
The rate for "For Sale" and "Want" advertisements is 6 cents per word, minimum $1.50. If an illustration is used, the charge is as follows, which includes the making of the cut:

Cut one inch deep, one column wide..... $ 5
Cut 1½ inches deep, 1½ column wide..... $10
Cut 2¼ inches deep, three columns wide..... $20

Terms: Cash with order.

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.



No. 8624—For Sale—Auxiliary keel schooner, 84 x 61 x 19 x 8 ft. One double, three single staterooms, bath. 40 H.P. motor. Speed 7 knots. $35000 spent 1920. Permanent improvements. Price reasonable. Seen New York. H. J. Gielow, Inc., 25 W. 43rd St., New York.

CHARTS AND MAN WANTED for Florida Cruise, September, 48-foot cruiser. Man must know inside route. Charts up to date.
STILLSON, Campgaw, N. J.

For Sale: Fiat 300 H.P. Motors, Model A-12, Isotta Fraschini Motors, type V 4 B—160 H.P., and type S—220 H.P., all brand new. P. Brady & Son Co., 554 West 58th St., N. Y. C.

1 Sterling 17-25 H.P. overhauled, in first-class condition, $450.00.
1 Erd 25 H.P. 4-cylinder, unit power plant, first-class condition, $300.00.
1 Sterling engine old type about 5 x 6, 4-cylinder, with reverse gear complete, $200.00.
1 Sterling, model B, unit power plant, complete, 4-cylinder, 4½ bore, 5½ stroke, overhauled, in first-class condition, refinished, $500.00.
KERMATH MANUFACTURING CO.,
Detroit, Mich.

One 4-cylinder, 4 x 5 Erd Engine, unit power plant, Magneto equipped. In perfect condition throughout, and has had very little use. $350.00.
KERMATH MANUFACTURING CO.,
Detroit, Mich.

KERMATH MOTORS—WE WILL TAKE ANY MOTOR IN TRADE ON A NEW KERMATH. GET OUR SECOND HAND LIST. KERMATH MFG. COMPANY. (Detroit, Mich.)

For Sale—Two cylinder, 36 H.P., two cycle Kahlenberg engine. A-1 condition. Complete with spare parts, clutch, shaft, stuffing box, propeller. Box 91, MoToR BoatinG.

I have a few pair of Bausch & Lomb 6 x 30 power, prism binoculars and will sell them for about one-half of the regular price—this is a wonderful opportunity for yachtsmen to get a good pair of glasses. Percy M. Child, 1110-14th St., N.W., Washington, D. C.

For Sale: 1. 2KW Carlisle & Finch direct connected lighting plant, and 1, 5 KW Winton direct connected plant; also 1-18 in. and 1-14 in. Rushmore searchlight and one 9 in. all brass-stand deck type yacht searchlight, and a few 150 lb. mushroom anchor. Percy M. Child, 1110-14th St., N.W., Washington, D. C.

For Sale: Cabin cruiser, ocean going. Flush deck 52 ft. x 12 ft. x 4 ft. Heavy duty Standard engine. Two lavatories, two cabins, mahogany trim, attractively furnished, one man control, no duty. $4500. A. E. Paradine, 38 Munro Park Ave., Toronto, Canada.

TRIMOUNT WHISTLE BLOWER OUTFITS
Blower runs by friction contact with engine flywheel. Whistle of brass, nickel-plated.
Made in 3 sizes.

TRIMOUNT ROTARY HAND BILGE PUMPS
All bronze composition. Suction lift 6 to 20 feet. A lifelong convenience.
Made in 3 sizes.

TRIMOUNT ROTARY POWER CO.
20 Heath Street Boston, Mass.
(Factory: 292 Whiting Ave., E. Dedham, Mass.)

40 MILES AN HOUR! 35-foot "V" bottom, mahogany runabout. Murray & Tregurtha six-cylinder complete outfit.
JAMES W. HUSSEY,
Greenpoint, N. Y.

REBUILT ENGINE BARGAINS

24	H.P.	4	Cyl. Anderson	4 Cyc.	$600
18	"	3	" "	4 "	500
20	"	4	" Special	4 "	250
50	"	6	" Fay & Bowen	2 "	295
18	"	2	" Kahlenberg	2 "	150
16	"	2	" Fay & Bowen	2 "	100
15	"	2	" Wolverine	2 "	100
4½ x 4½	"	2	" Horiz. Opposed	4 "	100
4 x 4	"	2	" " Air Cooled	4 "	75
6 x 6	"	1	" " Steam		100

45 Amp. 110 Volt Roth Dynamo 100
Anderson Engine Company, 4036 N. Rockwell St., Chicago.

One 4 cyl. 4 cycle Big Four tractor motor, 6½ x 8, 2,000 lbs. Governor control. Kerosene attachment. KW high tension magneto. Perfect condition. Price complete less reverse gear, $585.00. Would consider trade. 150 H.P. eight cyl. 4 cycle air cooled aeroplane motor, V type, 4½ x 5. Weight 600 lbs. with two 8 ft. propellers, $285.00. Would consider trade. Our latest list—500 engines—marine, auto, tractor, aero, stationary types, just completed. Send for copy, it's free, and state your power requirements. We buy engines, and take them in trade on new or used standard makes. The Badger Motor Co., Milwaukee, Wis.

For Sale—40 ft. 5 in. x 6 ft. 9 in. mahogany runabout "Chinook", speed 25 M.P.H. Equipped with six cylinder 5½ x 6 Van Blerck engine, electric starter, generator, electric lights, windshield, upholstered seats, top and curtains. Boat is in excellent condition and immediate shipment can be made to any point desired. Value $7,500.00; will sell for $5,000.00. Address Winton Engine Works, Cleveland, Ohio.

Speed boat for sale—17 ft. hydroplane. Equipped 4 cylinder, Hall-Scott aeroplane motor—all new and complete. Won first place, "1300 class" race—Mississippi Valley power boat regatta, Peoria—July 4th, 1921, against a large and fast field of entries, averaging over 43 miles per hour—made speed of 50 miles per hour on mile speed trial. Will sell for $500 cash. W. W. Cutter, 1007 Lehmann Bldg., Peoria, Ill.

For Sale: Fine pair imported eight power binoculars, new, $22; also pair field glasses; five power, $5.00. Satisfaction guaranteed. D. Davis, 20 S. Brownell St., Chillicothe, Ohio.

Beautiful summer home with lawns and wooded grounds overlooking Kempenfeldt Bay, Lake Simcoe at Barrie, Ontario. For sale to close an estate—you can visit Barrie by motor boat from Trent Canal. Apply Arthur Ardagh, Barrie, Ontario.

Advertising Index will be found on page 110

This is one of the greatest opportunities to obtain one of the most beautiful 40 x 6½ ft. mahogany family runabouts that has ever been offered.

There is no engine in this hull, but the bed is there ready for which ever engine you may desire and we have Sterlings, Van Blercks, Loew-Victors and many other engines that would be very suitable for installation.

The hull is mahogany throughout, piano finish and has an exceptionally large flare forward, and is approximately only about three years old, all equipped with green plush cushions, electric light fixtures, auto steering-wheel, wind shield; in fact practically all complete excepting the motor, high class in every respect and one of the best values ever offered.

This hull could not be duplicated today for less than $6000.00. Price to quick buyer $1500.00. Located New York City. Act quickly. Bruns, Kimball & Co., Inc., 153 West 15th Street, New York City. Phone Watkins 467.

AN EXCEPTIONAL OPPORTUNITY

30 x 6 practically new family runabout, complete with 20 H.P. Kermath engine, automobile control, bright decks and completely equipped with cushions, flags, etc. High class in every respect.

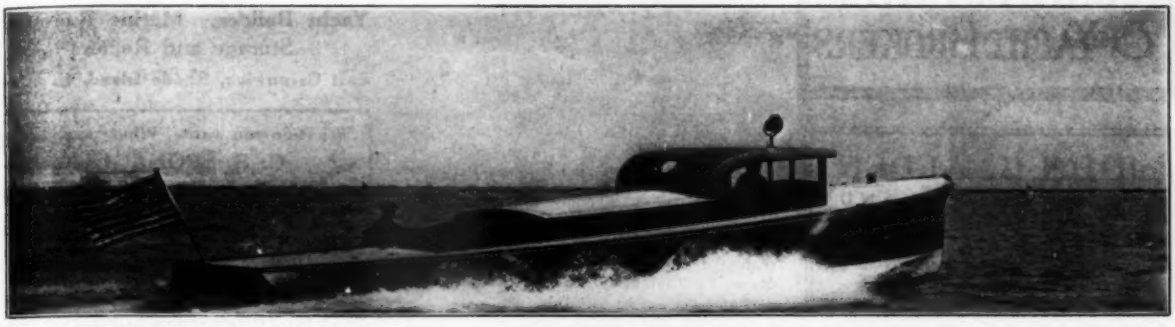
Could not be duplicated for less than $2500.00. Price to quick buyer, $1350.00. Inspection New York waters. Bruns, Kimball & Co., 153 West 15th Street, New York City. Phone Watkins 467.

No. 3744—For Sale—Bridge deck cruiser; 65 x 13 x 4 ft. Speed 11 miles; 6 cyl. 70 h.p. Sterling Motor. Two double staterooms, large saloon, bath and toilet room, etc. Handsomely finished. Price attractive. Cox & Stevens, 15 William Street, New York.

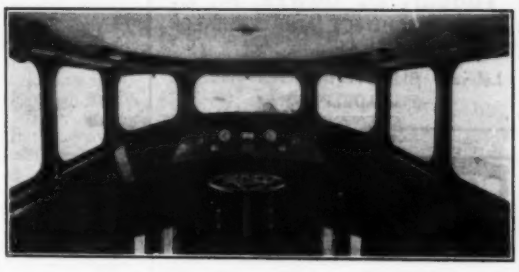
Auto Motor Supplies—Buick—Michigan—Stoddard Dayton—Cadillac—Overland—E.M.F. Continental and Buda Motors, all types $50 each and up. Special high tension 2 and 4 cylinder Magnetos $9.50 each. Electric and Gas Head Lamps—Coils—Carburetors—Air Compressors—Generators—Starters, etc. Write for late catalogue. Address Motor Sales Dep't. B, West End, Pittsburgh, Pa.

For Sale—Auxiliary cruiser. 2 masts. Chesapeake rig with center board. 60 ft. long, 17½ ft. beam, 3½ ft. draught. 25 net tons. Condition perfect. Rebuilt and equipped. Large saloon, 2 double staterooms, 2 large saloon berths, 2 crews' staterooms; bath and 2 toilets; large galley; also engine room. Unusually comfortable and commodious throughout. Engine 4 cylinder 40 H.P. double ignition and magneto. Speed with engine 9 miles. 1 power tender and 1 sail tender. Unusual bargain. Address "Baltimore," care of MoToR BoatinG, 119 West 40th Street, New York City.

For Sale, 25 foot all mahogany runabout, automobile control, 30 h.p. 4 cylinder motor, electric starter, 2 spark Berling magneto. Speed 15 m.p.h. and better. Price $1000.00. Will show and demonstrate by appointment. Lasser Bros., 165 Broadway, N. Y.



"NUMERO"—Built by GREAT LAKES BOAT BUILDING CORP., Milwaukee, Wis.
SEDAN MODEL—Length 48 feet, beam 8 feet 6 inches, draft approximately 3 feet.
POWER—Pair VAN BLERCK model M 8 cylinder engines (prevailing model).
SPEED—Actually 35 miles per hour.
FINISH—Mahogany and silk velour (interior).
ACCOMMODATIONS—Pullman berth, separate lavatory, ice box built in, generous locker space, Victrola, etc., etc.
EQUIPMENT—Standard marine, electric lights throughout, powerful search light, large expensive compass, Reliance revolution counters, all instruments and controls carried forward. Fuel tanks for 450 mile cruising radius.
CONDITION—Practically new, having been used only three months, afterwards carefully laid up under cover.
COST TO BUILD AND FIT OUT—$23,000.00. SALE PRICE—$16,000.00.
IDEAL FOR LONG ISLAND SOUND COMMUTING OR FLORIDA SERVICE. EXCEPTIONALLY SEAWORTHY.
APPLY TO YOUR OWN BROKER, OR MOTOR BOATING, BOX NO. 25.



For Quick Sale—Bargains

2 Eight Cylinder 5¾ x 7 Famous

SPEEDWAY MARINE ENGINES

built by Consolidated Shipbuilding Corporation in 1917. Motors but little used, in excellent condition, having just been overhauled in our shops and equipped with new Schebler carburetors, new Delco starting, lighting and double ignition system of the latest kind; clutch and reverse gear. Present cost of new motors equipped as above approximately $6,500 each. Sell both motors together at bargain.

MOON MOTOR CAR CO.
St. Louis, Missouri

All Sizes Rebuilt Marine engines from one to 300 H.P. 4 cyl. 4 cycle ULUUE 10 x 14", reverse gear, magneto, 48" propeller, $6,000.00. Pair STANDARD 300 H.P. 12 x 14" reversible, cost $25,000.00 each, price $4,000 each. Many other large and small four cycle and two cycle engines, for work boats, yacht, cruiser or tender. Write for list.
Hamilton Marine Engine Exchange 440 Fifty-Second St. Brooklyn, New York

R. W. ZUNDEL CO. INC.

ZUNDEL

A satisfactory stove. Burns denatured alcohol. For boat or camp use. Black enamel finish. Will give satisfaction. Width 20 in. Depth 15 in. Height to top of tank 9 in. **Price $17.50.**

This 6-volt Marine Horn combines distinctive marine appearance with a coarse heavy tone. The horn is of the vibrator type, with a very small current consumption; non-arching, full nickel finish projector for salt water use. 9 in. high, 4 in. wide at base, weighs 2¾ lbs. **Price $9.50.**

R. W. ZUNDEL COMPANY, Inc.
47 Whitehall St.—Phone Bowling Green 9157—New York, N. Y.

BOAT SUPPLIES

NAVAL ARCHITECTS & YACHT BROKERS

JOHN G. ALDEN
YACHT BROKER AND NAVAL ARCHITECT
MARINE INSURANCE
148 State Street
BOSTON, MASS.

Thomas D. Bowes, M. E.
NAVAL ARCHITECT AND ENGINEER
Offices:
Lafayette Bldg., Chestnut and Fifth Sts.
PHILADELPHIA, PA.

COX & STEVENS
Engineers and Naval Architects
Yacht Brokers
18 WILLIAM STREET, NEW YORK CITY
TELEPHONE 1378 BROAD

William H. Hand, Jr.
NAVAL ARCHITECT
NEW BEDFORD, MASS.
HAND-V-BOTTOM DESIGNS
Send stamp for catalog illustrating forty-three typical Hand-V-Bottom designs.

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NAVAL ARCHITECT
Sail or Power Yachts, Houseboats and Commercial Vessels
Yacht Broker Sales and Chartering
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NAVAL ARCHITECT
120 BROADWAY NEW YORK

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206 St. James St.
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N. E. McCLELLAND & CO., Ltd.
NAVAL ARCHITECTS
SURVEYORS — YACHT BROKERS

CHARLES D. MOWER
Designer of
SENSIBLE CRUISERS
POWER—SAIL—AUXILIARY
Twenty-five years' practical experience
350 Madison Avenue New York City

The Story of a Quick Sale and Remarkable Performance

By Hugh F. Palmer

There is always something happening in this Boat and Engine business. That probably is the reason so many of us stick to it instead of directing our efforts somewhere that might land us in the millionaire class. It is well to be happy even though we stay poor.

Everything, however, has its compensation and an incident connected with the delivery of a boat a few days ago illustrates the fact that boat and engine builders can occasionally derive pleasure from giving pleasure to others.

Mr. Herbert Gans, president of the Gans Steamship Lines, breezed into the plant of the Albany Boat Corporation on the last Sunday in May prepared to take away his little 26-foot runabout which had been stored for the winter. After a short session of the usual amenities Mr. Gans asked to be shown to his boat.

"Sure," said the Officer of the Day on duty at the Boat works, "Let's take a short cut; through the show room."

Of course the O.D. had no idea of making a sale, as sales have been out of style because of the 10% tax trimming our "Free" Government has put on them.

"Let's go," said Mr. Gans, and as they strolled through the show room—"Got a few nice looking boats here—any good?"

"Good? Whadda yuh mean good?"

"Why, speed, comfort, seaworthiness, all that, you know."

"Well," the O.D. began to come alive. "How about this beauty?" laying his hand on the 32-foot "show boat" powered with a six cylinder Hall-Scott motor. "Interested, Mr. Gans? Give you a little ride if you say so."

Mr. Gans casually asked what she would do for speed, admitting that she looked as though she had all the other desired qualities.

The O.D. was a little "stuck" there as the boat had never been in the water. Thinking candidness the best policy he admitted that this particular 32-footer had never been tried but had data on similar boats which led him to believe that she would do better than 36 m.p.h.

Mr. Gans was like the proverbial Missourian, so the boat was launched and gas and oil put aboard.

"You've turned over this motor?"

"No, not since installing, factory tests them."

"Well, how do you know she'll run?"

"Don't, just hoping—any motor usually needs a bit of adjusting, 'twon't take long however."

Everything set, the driver stepped on the starter button, there was a short whir of the electric starter which was suddenly drowned in the hum of the six pistons jumping into action. Lines were cast off, the clutch thrown in and they were away, up the Hudson a mile or so and then a circle back to the A. B. C. dock. The motor had jumped into action and given a satisfactory demonstration without even carburetor adjustment. This was remarkable but further surprises were to follow.

The boat was tied to the dock, Mr. Gans leaned back into the luxuriously upholstered seat and made his first remark in several minutes. "Fine, uh huh, fine—*How much?*"

"$9,500.00 plus war tax."

"Take my 26-foot ALBANY Runabout as part payment?"

"Sure."

"How much?"

"....." deleted.

"All right, keep the 26-footer, send you a check when I get back to New York."

"All right, closed, when shall we send you the boat?"

"Send nothing, I'm going to drive her to New York now, let's go."

And they went. Things happened so fast that the boat got away without christening and still she does not bear a name.

The remarkable part of this transaction is not the speed of the sale, not the speed of the 37 m.p.h. boat but the fact that Mr. Gans drove his new and untried boat the 156 miles to New York that Sunday afternoon and did not have a bit of trouble with motor or boat. He stopped at Poughkeepsie for fuel but aside from that made a continuous run of 156 miles in 5 hours 20 minutes with a motor that had had no adjustments of carburetor or other parts since leaving the factory at Berkeley, Calif. Truly this is some compensation for the boat and engine builders and is more satisfactory than large profits.

To those of you who have experienced putting a new motor into commission will appear the remarkableness of this performance and the probability of boats' pleasure with little effort in future.

How About Tools?

All motor boatmen are proud of their tool equipment. There are many tools which may be missing from their lockers which can be found fully described in the little Tool Book, Number 14 which has just been issued by the Goodell-Pratt Company, Greenfield, Mass. Over 2,000 sizes and kinds of tools are illustrated in the book which is supplied to anyone interested in tools gratis on request.

Advertising Index will be found on page 110

FREDERIC S. NOCK
NAVAL ARCHITECT
Yacht Builder, Marine Railways, Storage and Repairs
East Greenwich, Rhode Island, U. S. A.

What do you want—What have you?
C. S. SPONAGLE
Yacht Brokerage and Insurance
Commercial Boats
Competent Crews Furnished
88 Broad Street Boston, Mass.

Boat Headquarters in Baltimore
For quick action list your boat with us.
STALEY'S YACHT AGENCY
Yacht and Ship Brokers
106 N. Charles St., Baltimore, Md.

110-Ft. Yacht "CONSUELO"

Sixteen Years
Designing
Experience
Specialty
Seagoing Yachts
J. MURRAY WATTS, N. A.
136 South Fourth St. Philadelphia
Phone: Lombard 2072

NEW KIND OF BOAT
Absolutely different. Less fuel consumed, shallow draft, safe, roomy. Speed double that of others of same size and same amount of power. Write. A big surprise awaits you. Address Charles L. Woods, McHenry, Ill.

GREYHOUND
Owner, Edsel B. Ford, Detroit
Designed by Tams, Le Moine & Crane
58' x 10' 6" x 3' 6". Speed 26 M.P.H.

Why Waste FUEL and SPACE

Both boats shown were formerly powered with twin screw eight cylinder marine motors 5½-inch bore.

Twin screw six cylinder HALL-SCOTT marine engines replaced the former power plants—RESULTS—Equal speed for Greyhound—More speed for Myrno II—Fuel bills cut one-third—Vibrationless operation—90 percent less motor trouble—More usable space in engine room—Less draft—Low speed control improved 100 percent.

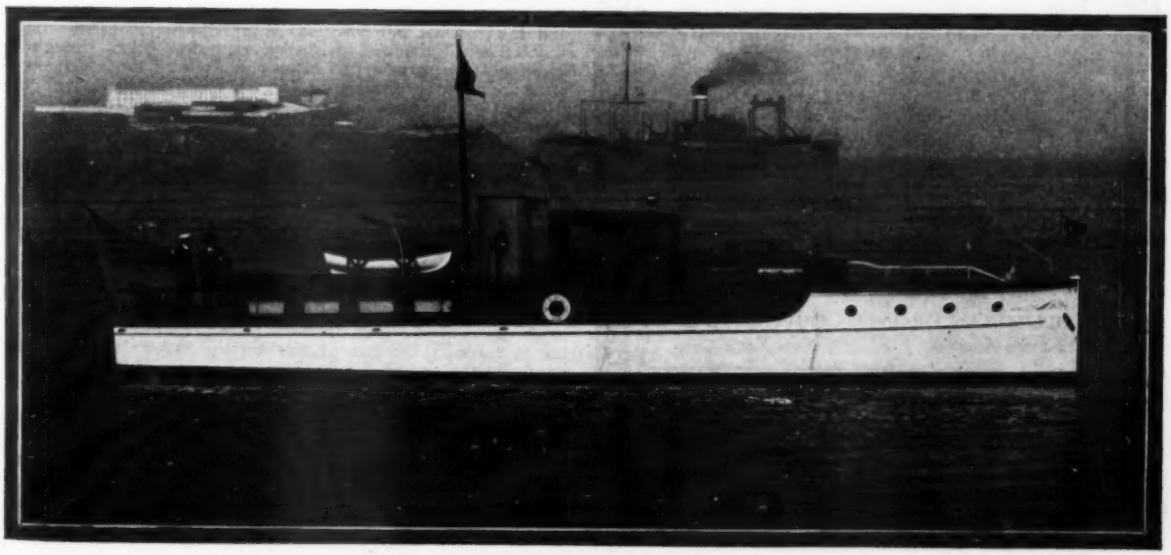
HALL-SCOTT'S have and are making good in fast cruisers and runabouts because we have an organization and factory capable of producing BETTER marine engines in design—material and workmanship.

Built in two sizes only.
4 cylinder 125 H.P. weight 1100 lbs. 6 cylinder 200 H.P. weight 1300 lbs.
Single and twin screw plants in stock at

HALL-SCOTT MOTOR CAR CO., INC.

Eastern Sales & Service Branch, 266 Main St., Buffalo, N. Y.
Factory Berkeley, California.

MYRNO II
Owner, Norman De Vaux, San Francisco, 62' x 11'x3' 6". Speed 25 M.P.H.



Columbian Bronze Propellers

are carried in stock by

NEW YORK CITY AND BROOKLYN
Columbia Brass Foundry, 44 Third Avenue
Bowler Homes & Hecker Co., Inc.
259 Greenwich Street
Bruns, Kimball & Company
153 West 15th Street
Sutter Marine Equipment Company
Foot of East 92nd Street, Brooklyn, N. Y.

BOSTON, MASS.
Walter H. Moreton Corporation
780 Commonwealth Avenue

PHILADELPHIA, PA.
W. E. Gochenaur Mfg. Company, 631 Arch Street

BALTIMORE, MD.
Fairbanks, Morse & Company
115 East Lombard Street

DETROIT, MICH.
Henry H. Smith & Company, 252 Jefferson Ave.

CLEVELAND, OHIO
William F. Meier, 1433 West 77th Street

CHICAGO, ILL.
George B. Carpenter & Co., 440 North Wells St.

JACKSONVILLE, FLA.
Burroughs-McMeekin Company, 30 East Bay St.
George E. Chase & Company, 323 East Bay St.

TAMPA, FLA.
C. W. Greene Company

NEW ORLEANS, LA.
Arthur Duvic's Sons, 122 Chartres Street
A. Baldwin & Company
Corner Camp and Common Streets

SAN FRANCISCO, CAL.
Weeks-Howe-Emerson Company, 90 Market St.

SAN DIEGO, CAL.
McCaffrey Blade Company

LOS ANGELES, CAL.
Stanton Sales & Engineering Co., 105 Macy St.

SEATTLE, WASH.
S. V. B. Miller, 72 Marion Street

MONTREAL, CANADA
Pyke Motor & Yacht Company
374 Notre Dame Street, West, Montreal

ST. JOHNS, NEWFOUNDLAND
Job Stores, Limited

MIAMI, FLORIDA
A. Pelsang

ALEXANDRIA BAY, NEW YORK
Hutchinson Bros.

Columbian Bronze Propellers are carried in stock by the above distributors—order direct from them

COLUMBIAN BRONZE CORPORATION
522 Fifth Avenue **New York City**

The Columbian Bronze Corporation will replace without charge any Columbian Propeller that is broken in use within one year after date of installation.

Misfortune Overtakes Hippocampus

(*Continued from page* 10)

athwartship in our cockpit.

This dink was the joy of our life. It replaced the one we had lost in the storm off Fenwick Island Shoals, and was the newly received gift of the Skaneateles Boat & Canoe Company. For nearly a thousand miles we had gone without a skiff and had moored to rickety, unsafe wharfs because we were unable otherwise to get ashore at pleasure. Now that we had a new skiff, with Hippocampus painted in gold on both bows, we were determined that it should not get away from us, come what might in the weather line. Patting its varnished sides affectionately, I climbed over it, went below, crawled beneath my mosquito bar, and, following the example already set by Chambers and Squibb, passed out.

Such is the effect of wind and sun upon us that we can never manage to go to sleep gracefully. We pass out, not to awaken until in the normal order of events Paul's mental alarm clock goes off inside his brain and he routs us out. But on this night at 1:05 A. M. we awoke simultaneously and completely to the cacophonous tune of splintered wood, of falling crockery and tinware, and—most ominous of all—to the sound of inrushing water. The exact sequence of events succeeding this Babel of noise would probably be told differently by each member of the crew, and I admit that I was too dazed by the shock to know what had happened or was happening. At first my only conscious act was to note the time told by the luminous dial of the watch strapped to my wrist—and that, I believe, was merely a reflex emanating from the days when as quartermaster in the Navy I was trained to record events and the time of their occurrence.

Chambers was first on deck. He had been catapulted from his pipe berth to my bunk, the mosquito netting proving no barrier to his flight. He landed in such a way that he suffered a contusion to one leg while I sustained a bruise on my breastbone, and I believe that he ricocheted from me and was surveying the damage on the topside before the ship had returned to an even keel. Squibb followed him out of the companionway and I came third, neither of us noticing that the doorway was unobstructed until Chambers cried out, "Boys, the wherry is gone!"

But he was wrong. The wherry had been moved from cockpit to waist deck but it was there—in two pieces. The larger piece was the keel, frames, and planking, and the smaller, the sternpiece, cut away as neatly as though it had been chiseled. Nevertheless my heart skipped a beat and I remember repeating over and over, "If we had only put to sea."

What had happened to us? I hadn't an inkling of an idea and Al and Paul admitted later that they thought we had been cut down by a steamer. We were adrift, with our bowline dangling entire from the capstan, one spring gone, and the other, which had done duty also as the stern breast, parted in one place and secured at its other end to the amidship niggerhead of the barge, bobbing in the water beside us. Around us there was a film of dust on the water, but the tide had already carried us out of sight of the barge and of every other familiar object.

It may have been seconds or it may have been minutes later that I found myself entering the cabin after a survey of the deck, preparing at Al's suggestion to start the engine. The noise of inrushing water had long since stopped, but as I stepped off the companionway ladder, a pool gurgled around my ankles and I knew that pumping was a prerequisite to getting under way. Then I thanked my lucky stars that I had brought in addition to our ornamental brass pump one of those galvanized affairs with a three-inch discharge. Paul turned to with this lifesaver and in time the lower periphery of the flywheel was clear of water.

At this juncture we still had no inkling of what had occurred. We knew that although we had been badly hurt our fuel pipes were unbroken and that we were taking little more water. But we were uncertain of the condition of our power plant, and we were rapidly drifting stern first toward the jetties. Al, after straightening up on deck, hoisted the jib and jigger, but there was insufficient air to stem the force of the tide. To anchor in the deep water of the channel seemed unwise since we were not yet sure we would remain afloat. Within my own brain circumstances and ideas were in a state bordering on chaos up to the moment in which, working automatically, I went through the preliminary motions of starting the motor and placed my hands on the rim of the flywheel.

With one turn she was firing, and I closed the compression cocks and bounded to the deck. Taking the tiller I glanced at the radiolite compass, looked about me and recognized one light of the many around us. Although embarked upon a sailing cruise I am still enough of a motor boatman to feel the steadying effect of power, and the act of transmitting our motive force to the propeller cleared my brain and orientated me with respect to our position in the river. Then, despite the blackness of the

(*Continued on page* 54)

ELECTRICITY afloat leads the way in Safety, Reliability, Comfort and Economy, as applied to day cruisers, yachts, house boats and commercial vessels.

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17 Battery Place, N. Y.

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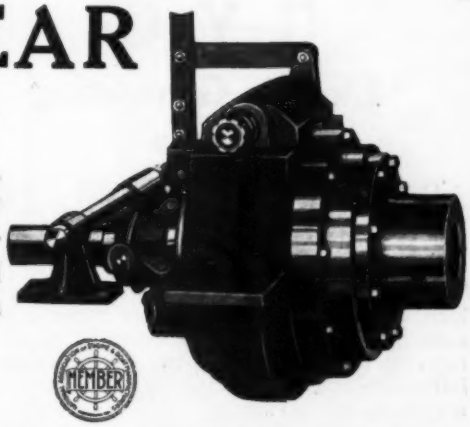

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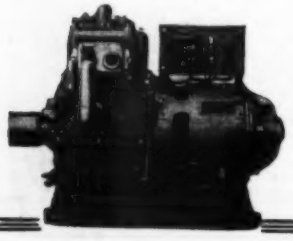
Electric Generating Plants

The Columbian C. Y. C. Electric Generating Systems offer the owner of cruiser and yacht unusual advantages for electrifying the boat at small cost.

This system is one of the most compact of its kind. The engine operates on kerosene, is direct-connected to the generator which is of 1½ kw. capacity. The principal parts of the engine are interchangeable with those of the Ford motor and are obtainable anywhere.

We desire correspondence from responsible dealers who will take the exclusive agency for this system in various localities.

Write us for literature and full details.



Columbian Bronze Corporation
522 Fifth Avenue
New York City

Misfortune Overtakes Hippocampus

(*Continued from page* 52)

night, it was a simple matter to buck the tide and make a landing alongside a tug secured to a wharf in Mayport.

It was then after two in the morning and time for a chow and for a post mortem examination and deductions, for we were still uncertain of the cause of our mishap. Chambers it was who furnished the key from which the three of us worked out the details of the mystery. The stone barge to which we had been moored, falling with the ebbing tide, had caught its inboard side on a submerged pile and canted over, spilling its deck load of boulders in our direction. One stone weighing—we were informed later in the morning—ten tons had rolled off and carried away the eight-by-eight-inch niggerhead of the barge before striking us.

The first shock of the impact against our craft had been taken up by our unfortunate wherry, lashed directly in the way, and had given Hippocampus time to spring slightly away from the barge. The yawl had, of course, heeled over as soon as she felt the weight of the boulder, and as the dink crashed and was pushed to one side, the stone settled and nicked one corner of the deck-house before striking the starboard waist deck and falling into the water. Another boulder had left its mark on the planking under the forward shrouds, and a third had scored one of the mizzen chain plates; but the major part of the 200 tons of rock with which the barge had been loaded passed harmlessly into the water.

Arrived at these conclusions we pumped the bilge dry and examined more carefully the damage to our deck and side. With relief we found that no injury had been done below the waterline, and that aside from broken coaming, deck cover strip, and three planks in the topside which were crushed in part and would require renewal, we were unharmed. The frames and knees were uninjured, and the seams being tight, we were taking water only in one place above the water line where the small waves splashed up against a fractured plank. A canvas patch battened over the damaged area kept out the water, and by eight o'clock we were under way for Jacksonville, a much needed breakfast tucked beneath our belts and a measure of composure in our minds.

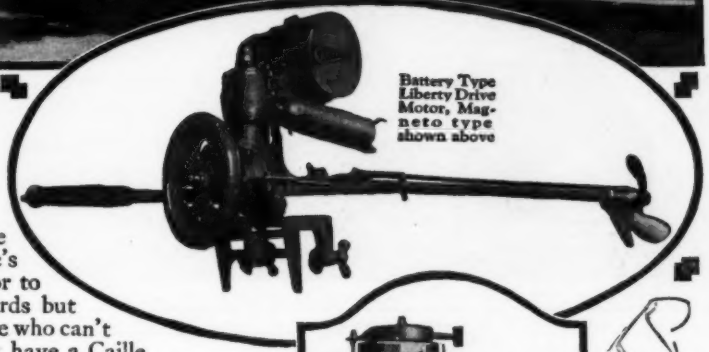
Motoring up the river past the disabled barge, we had more leisure to congratulate ourselves on our escape and to conjecture on what would have happened under slightly different circumstances of the accident. If, for instance, the boulder had landed three feet farther forward it would have crashed through the carlines of the cabin house and pinned me to my bunk. Or if the wherry had not been lashed across the cockpit the boulder might have fallen inboard and taken us to the bottom with it. If the barge in canting over had not floated our bow line clear of the niggerhead, and if the amidship bollard had not been carried away, the strength of our four lines would have held us close to in a position to receive the entire 200 tons of jetty rock. These were the major possibilities, and the minor escapes seemed no less miraculous. For example, our two compasses bracketed the wherry—one in its fixed position on the cabin bulkhead, and the other temporarily placed just abaft the small boat. Neither was so much as scratched. The shrouds, spars, and all the rigging with the exception of one backstay runner block which Al easily repaired escaped injury and we lost overboard no equipment except an agate washbasin, two rope fenders and half a pound of butter which one of us slid on as he hit the deck.

The extent to which Hippocampus rolled under the impact was shown in three ways, first by the opened cover of our chronometer box; second, by the highwater mark on the clothes locker overhead, and third by a dent in the woodwork left by a falling fire extinguisher. This extinguisher normally hangs from a hook on the port side abaft the galley, about five feet from the deck. It detached itself and struck the face of the clothes locker opposite at a point only one foot lower. All this indicated that the yawl rolled nearly to 75 degrees, and we thanked our ton of outside ballast for bringing us back to an even keel.

Chiefly, however, we thanked Hippocampus herself (and her designer and builder) for being the staunchest boat of her length afloat. Her two-inch oak frames and one-inch planking took the shock so evenly that when, upon our arrival in Jacksonville, a boat-builder looked her over, he promised that in four days she would be as good as new.

This boat-builder was F. J. Davenport, of the Riverside Boat Mfg. Co., to whose capable attention I take pleasure in referring other yachtsmen who may find themselves in trouble in Jacksonville. Without hauling us out he had two men at work on our side Tuesday morning, and by Friday evening only two patches of new canvas on our cabin house and deck told the story of the casualty. Three short lengths of plank secured with three-inch brass screws, an eight-foot section of the cover strip, a 12-foot piece of oak coaming, and two or three

(*Continued on page* 68)



Battery Type Liberty Drive Motor, Magneto type shown above

There's a Caille Motor to Meet Every Purse

For you sportsmen who are still tugging away at oars—making engines of yourselves because you feel you can't afford to buy one—here's glad tidings. There's a Caille rowboat motor to meet *your* purse. We can't all afford Packards but most of us can at least have a Ford. And those who can't afford a Caille Five-Speed Motor can surely have a Caille

Liberty Drive
ROWBOAT MOTOR

It attaches to the square stern of any rowboat in a jiffy. Develops 2 H. P. and will drive a boat 7 to 10 miles an hour. Speed variations are secured by revolving steering handle in the hand. Pressing a button at end of handle stops the motor. Has improved water-cooled muffler and weedless propeller. Goes through weeds like an eel. Motor pivots in both an up-and-down and sidewise movement. Propeller automatically rises over obstructions. Will drive a boat anywhere it will float, no matter how shallow the water. Furnished with magneto or battery ignition. Send for details and prices. The

CAILLE 5 Speed Motor

is the finest rowboat motor made. Provides five speeds—2 forward, 2 backward and neutral. Speed changes are secured by raising or lowering steering handle in rachet. When set at neutral boat stands still with motor running. This motor starts with a starter—no cranking. Furnished with a magneto built into flywheel or battery ignition. Has water-cooled muffler on exhaust. Made of best materials throughout and beautifully finished. Send for catalog. Describes both motors. Address us or nearest distributor.

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Think what having a rowboat motor to meet every purse means to you. Think what it means to handle such widely advertised and well-known motors as the Caille line. Then send for our dealers' proposition, but act quick.

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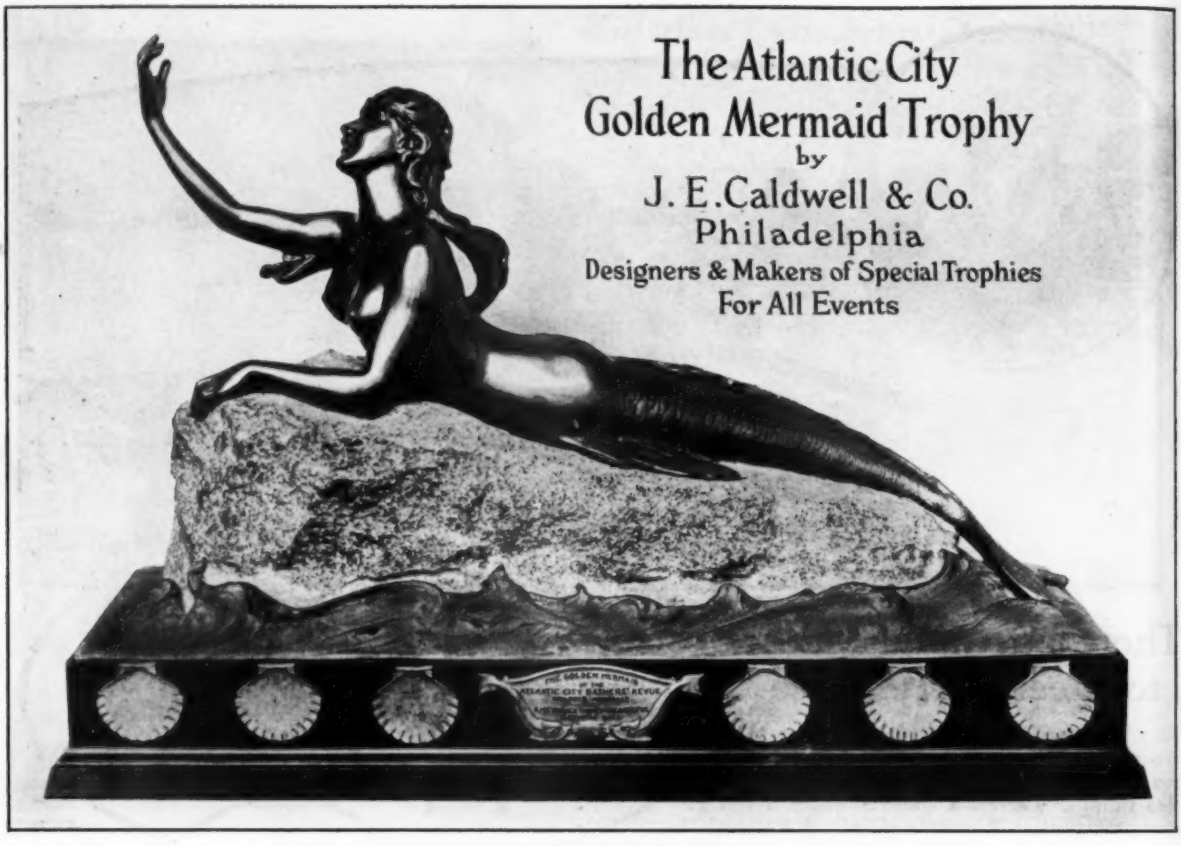
CAILLE
Rowboat Motors



Speejacks, the Ocean Cruiser

(*Continued from page* 16)

Slipping south through the Straits of Formosa to the Chinese Coast, this Yankee yachtsman goes up the Yangtsze-Kiang almost to its source, where only the junk or sampan plies the stream. Then down again to the wild lands of Borneo, Sumatra and Java, penetrating the interior as desire and discretion warrant. Around the foot of India, skirting then the Persian and Arabian Coasts, south along Africa to Zanzibar and Mozambique and north again for a rendezvous in the Mediterranean country to complete the eventful history.

All hands aboard will play their part in the adventure and must accept the risks and rigors along with the thrills and pleasures. Mr. and Mrs. Gowen and their guests will carry on practically all of the ship's business, a crew of six completing the company.

The owner carries aboard a complete motion picture installation and will bring back a permanent pictorial record of the cruise. Besides the infinite variety of peoples and places to be filmed, unusual interest attaches to this feature of the journey inasmuch as it will probably rank as the first of its kind ever attempted under similar conditions.

From windlass to wireless the design of Speejacks has proceeded entirely under the owner's carefully thought-out plans and embodies every feature essential to such a passage. The boat has a length of 98 feet and is powered by two 250 horsepower Winton engines, with a beam of 17 feet, and a draft of six feet, operated either by gasoline or kerosene, generating a speed of 13 knots, with a cruising radius of about 3,000 miles. Apart from its propulsion, everything on board, such as the operation of the windlass, hoisting and lowering tenders, etc., is accomplished by electricity, thus reducing the crew requirements, to six men instead of ten or twelve. With an eye to any contingency, Mr. Gowen has provided two pieces of every essential apparatus, instead of one, so that in the event of the standard equipment failing to function, he can always fall back on a substitute.

The ship is built to withstand the vicissitudes of every climate. There is a hot water furnace for cold weather while for the tropics a system of forced ventilation below decks changes the air automatically every six minutes; wireless telephone and telegraph equipment operate on a working radius of about 1,500 miles; while throughout the ship there is a complete line of inter-communication; a recording instrument, known as a Sal-log and hitherto carried only by ocean liners, registers the speed of the boat in knots and records the various distances travelled; the vibration throughout the boat has been practically eliminated and in seas rough enough to throw the propeller blades out of the water a patented governor holds down their revolutions. Decks and the exterior woodwork are of imported teak wood to withstand all weathers; she carries on deck a sail boat, tender and power lifeboat equipped for any emergency. This ship will sleep comfortably only seven people besides the crew, for it has been the owner's plan to devote every available inch to deck space. For cruising when winds are favorable, the boat is equipped with a complete set of sails.

DECK CANVAS-ALL WIDTHS
YACHT SAILS-AWNINGS-SPRAY HOODS-Etc.
522 So. Delaware Ave Philadelphia
GEO. R. BURROWS, Inc.
2 South St New York

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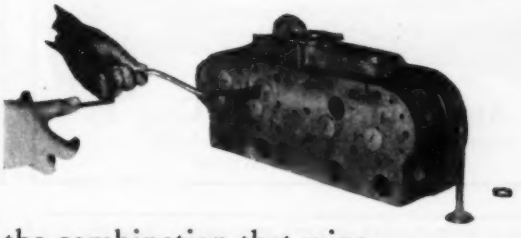
Knox

"Steady Service"



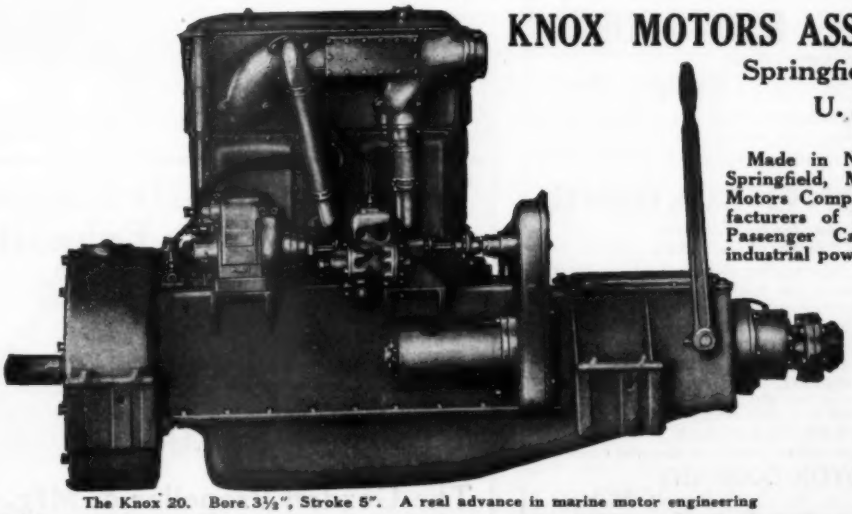
OTHER things being equal, the service and satisfaction a motor will give depends upon the amount of intelligent care and attention it receives from the owner. Quality of design, materials and workmanship, plus good care is the combination that wins.

When we sell you a Knox Twenty we can't make you take care of it. But we can and do make it easy for you to take good care of it. By making the lubrication entirely automatic, the adjustments simple, the working parts accessible, it is easy to keep the motor running like a watch with the minimum of attention.

Notice the simplicity of grinding the valves. You remove the whole cylinder head, valves and all. Set it up on a bench where it is easy to work. Carbon can be scraped off the piston heads in a jiffy. Pistons are quickly taken out by loosening the bearing caps. You can overhaul the Knox Twenty complete in about the time it takes to tear down an old style motor.

If you are not familiar with Knox Twenty design, you have a real treat in store. Take a lesson in up to the minute advanced marine motor engineering. Write us for the complete story.

Full data on request. Write today.



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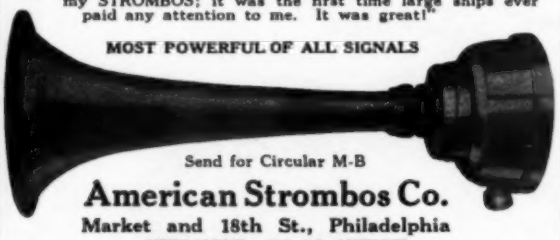

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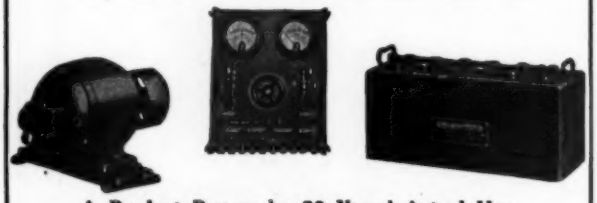

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and MARINE PAINT SPECIALTIES ARE THE WORLD'S STANDARDS

Copper Paints—Brown, Red and Green, Yacht White, Deck Paint, Marine Mixed Paints, Metal Bottom Paint, Seam Paint, Seam Compounds, Sparon (Spar) Varnish, Engine Enamels, Canoe Enamels, Boat Bottom Seam Compound, Copper Bronze, Light Sea Green and Regatta Green Yacht Bottom Paints, etc.

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A High Grade Single Cylinder Four Cycle Engine of 4-5 H.P.

The ideal engine for your tender, fishing boat or other craft up to 30 ft., and on larger boats for operating generators for lighting plant or wireless outfit.

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It retains all the wonderful efficiency, smoothness of power flow, great range of control, and complete freedom from carbon of the Diesel Type.
In sizes as low as 7½ H. P.

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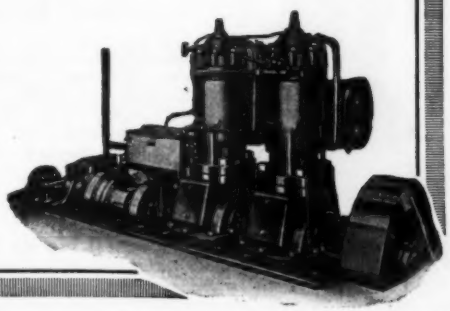
We are also builders of MIANUS Gasoline Motors.



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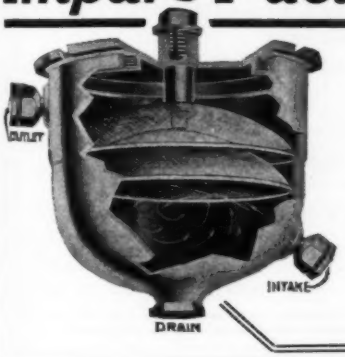
Impure Fuel Due to Water! KLEENGAS PURIFIER



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You can't prevent water from collecting in your fuel tank and line—it condenses from damp atmosphere as well as the water in the gas or kerosene you buy. You can't prevent sediment, dirt, fluff, rust, impurities—some scales off the tank lining—some comes in the gasoline itself. But you can prevent all the troubles caused by these impurities.

KLEENGAS is a high grade PURIFIER scientifically designed, simple in construction and made of the best non-corrosive materials. Aluminum bowl, double parabolic fine mesh bronze screens, brass drain tap at bottom. It cleans itself by the swirling motion, the impurities dropping down so they don't clog the screen. Large capacity allows full gas flow and requires only occasional draining.

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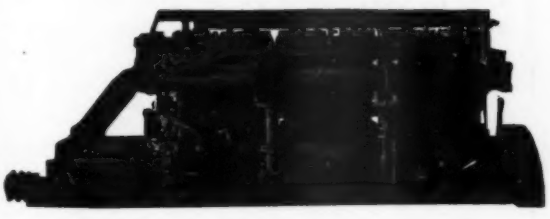

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will be a stanch, long-lived craft if she is planked with

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CYPRESS has rot-resisting characteristics which make a Cypress boat a long-lived and *safe* boat. Get the *facts* in VOL. 19 of THE CYPRESS POCKET LIBRARY, "CYPRESS FOR BOATS and CANOES." Sent FREE with our compliments.

MANUFACTURERS: WRITE FOR INTERESTING DETAILS

Southern Cypress Manufacturers' Assn.

1317 Graham Building, New Orleans, La., or
1317 Roydras Building, Jacksonville, Fla.

Peerless

New High Speed— Light Weight

The product of experience and development in actual boat service. Extremely light weight is secured by employing special castings and alloy steels throughout.

Bore 5". Stroke 7". Speed 1650 R.P.M.

4 cyl. 125 H.P..... 700 lbs.
8 cyl. 250 H.P..... 900 lbs.
12 cyl. 400 H.P.....1100 lbs.

Peerless Marine Motor Co.

2160 Niagara St. Buffalo, N. Y.

OLOMEL

A Superior Oil and Water Stop Better and Cheaper than Red Lead

Used by Consolidated Shipbuilding Corp., on the

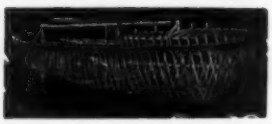
YACHT "LYNDONIA"

also on U. S. Destroyers, and by leading shipyards. Supplied in three forms—Olomel Solution, Olomel Compound and Olomel Putty. We also manufacture Bitumel, Electrimel, Bituminous Enamel, Oxide Iron Paint, Copper Paint, Non-Corrosive Paint, Acid Resisting Paint, Etc.

Write today for full information and prices.

OLOMEL MFG. CO., 18th & HAMPSHIRE STS. SAN FRANCISCO, CALIF.

Build Your Own Boat



—cruiser, work boat, open launch or row-boat — from our knock-down frames or patterns.

Save ½ to ¾ the Cost.

Send for Catalog and Tell Us Your Requirements.

DEFOE BOAT & MOTOR WORKS

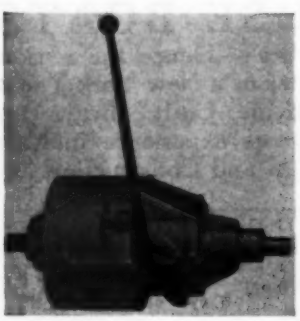
3220 State Street Bay City, Mich.

Crockett's Spar Composition is the only varnish which will last a season on a deck

E. Z. VARNISH REMOVER

Film remains soft until removed

THE DAVID B. CROCKETT COMPANY
Bridgeport, Conn.
The Bissell Varnish Company, *Successor*



MASTER REVERSE GEARS

Strictly high quality reverse gears. Multiple disc clutch, nickel steel shaft and gears, hardened and ground, with bronze bushings working on hardened steel pins. Aluminum case saves weight.

Four sizes transmitting 12, 25, 50 and 85 H.P. respectively per 1000 R.P.M.

Write today for prices.

MASTER MOTOR CO.
19 Price Ave.
Lockport, N. Y.

DON'T BUY A BOAT

TILL YOU SEE THE

CAPE COD 20-FT. DORY LAUNCH

The Safest Little Family Boat Built. Motor Housed In.
Other Standardized Cape Cod Boats

17' Sail Dory	14' Outboard Motor
16' Shallow Draft	10' Row Boat
17' Life Saving Dory	12' Row Boat

Write for Prices

CAPE COD SHIPBUILDING CORPORATION

Successors to Cape Cod Power Dory Co.
Builders of craft to 150' length, or 10' draft
Winter Storage
Main Office and Works, 367 Main Street, Wareham, Mass.
New York Show Rooms, 412 Eighth Avenue, New York City
Export Office, Factory Sales, Sprague and Duckett, 342 Madison Ave., New York City

Advertising Index will be found on page 110

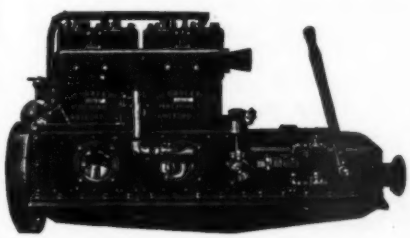
PURDY BOAT COMPANY

Designers and Builders of

EXPRESS CRUISERS

TRENTON MICHIGAN

GRAY-PRIOR
FOUR CYCLE
MARINE MOTORS
Built up to a Standard—not down to a price



A Clean-Cut Power Plant

For Commercial Boats and Cruisers

Model D-4, Medium Heavy Duty

36 Horse Power Bore, 4½ inches Stroke, 8 inches

Write today for full description and prices

THE GRAY & PRIOR MACHINE COMPANY
56 Suffield Street Hartford, Conn., U. S. A.

Improved Motor Boat Closet

Figure 1404

Dimensions: 18 x 18 x 11" high to top of bowl; 2½" cylinder. For above or below water line.

The best little closet on the market today, possessing many of the advantages of the large size toilet. All brass and porcelain. Oak seat and cover.

All prices subject to market advances, which are continually changing.

THE J. H. CURTISS CO.

The J. H. Curtiss Co.
Pioneer Specialists in Marine Sanitary Fixtures

Since our advertisement appeared in the first issue of MoToR BoatinG, December, 1907, hundreds of Curtiss fixtures have been installed in motor cruisers and yachts of all sizes, including some of the finest boats launched within this period.

The Curtiss line is exceptionally complete, varied in type, size and price to meet every possible requirement. Each model has been designed in accordance with our wide experience in boat work and can be depended upon in quality, service and durability no matter whether it is our highest or lowest priced model.

"PRICES ON APPLICATION"

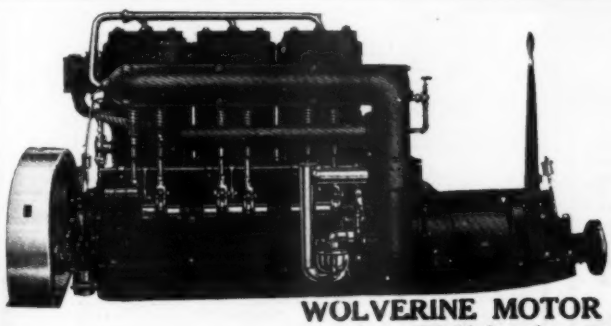
With Pump

Cock on pump swings upward, thus preventing breaking of bowl. Soap-dish is porcelain and removable.

No. 5
Height, 19 in.
Width, 19 in.
Depth Closed, 6 inches.
Quartered Oak Case, or Mahogany Case.

Lining and Fixtures Nickel-plated. Porcelain Bowl. Mahogany or Quartered Oak Case.

2 South Street, New York



"WOLVERINE"

The Motor with the Bore and Stroke

HEAVY DUTY MARINE ENGINES

KEROSENE — Used successfully for 15 years. Device built into engine.

WOLVERINE MOTOR WORKS
33 Union Avenue
Bridgeport, Conn., U. S. A.
(Formerly Grand Rapids, Mich.)

Catalogue No. 113 gives full information

The
Automatic Self-Bailer

is absolutely guaranteed to keep your bilge drained, without repairs, adjusting, oil or any upkeep attention, for the life of the boat.

Safety valve handle furnished in any desired length.

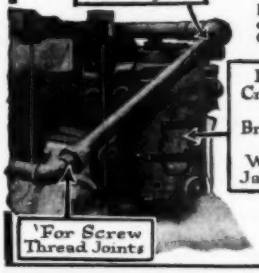
For fresh or salt water.

If your dealer cannot supply you write us

ST. CLAIR IRON WORKS
206-212 Witherell St. St. Clair, Michigan

SMOOTH-ON

HERE'S YOUR REPAIR BILL!

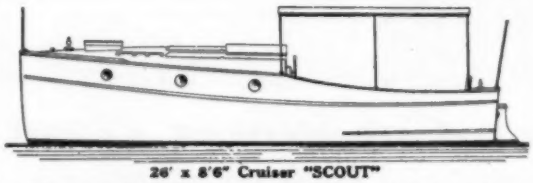


"To Repairs on Motor Boat," $25.00

Practically all of this expense could have been saved if Smooth-On Iron Cement No. 1 had been used. It repairs cracked waterjackets, leaky screwthread joints, scored cylinders, etc., quickly, easily, and economically.

Send for our illustrated Motor & Home Repair Booklet No. 267. It's FREE—write for it today.

Sold by Supply Houses
SMOOTH-ON MFG. CO.
Jersey City, N. J., U. S. A.



26' x 8'6" Cruiser "SCOUT"

The most for the money on the market today. Large cockpit, roomy cabin with toilet, galley and berths for four. Full headroom. Four cycle motor, speed 9-10 miles, fully equipped for cruising, $2500.00.

We have a large number of models in both Runabout and Cruisers from which we furnish K D frames to complete outfits. We gladly quote on your requirements.

RICHARDSON BOAT CO.
370 Sweeney St., No. Tonawanda, N. Y.

ESSENTIALLY a quality product, furnishes its user with an ideal socket wrench — one that will get into the most difficult corners and with its great strength and flexibility yank loose the most stubborn bolt or nut on any boat.

Let us send you data on our special Dealers' proposition. Fully guaranteed.

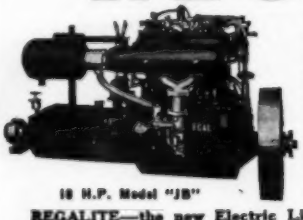
ROBINSON EQUIPMENT CO.
Waltham, Mass.

BET-R-BILT SOCKET WRENCH

Twenty Years on the Market

REGAL

—FOUR CYCLE— MARINE ENGINES



18 H.P. Model "JB"

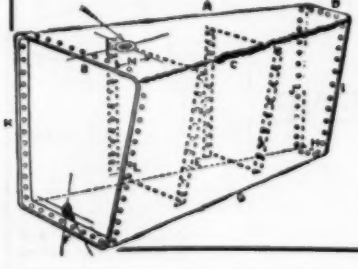
Built for commercial or pleasure boats. Sizes 2 H.P. —weight 125 lbs. to 50 H.P. —weight 3000 lbs. One to four cylinders. Use gasoline, kerosene or distillate for fuel. Easy to start and may be throttled to a very slow speed.

REGALITE—the new Electric Lighting Plant, 2 h.p. air cooled motor, ½ k.w. generator. Write for information.

REGAL GASOLINE ENGINE CO.
74 West Pearl Street COLDWATER, MICH.

LUNKENHEIMER
Automotive Accessories
WRITE FOR CATALOG No 5-CC
THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI
RELIABILITY-ECONOMY-SERVICE
30-14-33

Gasoline Tanks, Air Whistle Tanks, Mufflers, Stacks, Special Plate and Sheet Metal Work for Pleasure Boats.



L. O. KOVEN & BROTHER
Main Office,
158 Ogden Ave.,
Jersey City, N. J.

Branch, 50 Cliff St.,
New York City.

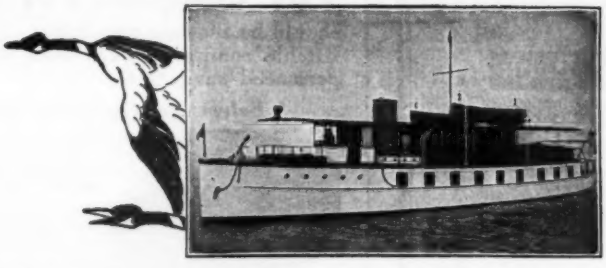
HARRISON Standardized Boats

This is a cut of our 32-foot V-Bottom Cruiser that is making such a Hit. A truly wonderful Craft. We build "Boats of Quality" at moderate prices.

32-foot Cruiser, 40 H.P. Price including tax	$4,950.00
20-foot Runabout, 20 H.P. Price including tax	1,500.00
10-foot Yacht Tender. Price including tax	125.00
16-foot Outboard Rowboat. Price including tax	85.00

R. W. HARRISON BOAT WORKS
"Established 1897" Bay View Park, Toledo, Ohio

Advertising Index will be found on page 110



Mathis-Built Houseboats

You may not think so now—but you will want to go southward with the birds at the first hint of Winter.

There's no more delightful way to do it, than slipping gently down the picturesque Atlantic Coast, Florida-bound aboard your own Mathis-Built Houseboat. That means the maximum of perfect comfort and enjoyment with you continuously along the entire route.

Once there, Florida waters hold for you a round of exhilarating pleasures that can be had in no other way.

Mathis-Built Houseboats were chosen by E. H. Garcin, E. L. King, R. M. Bond, J. W. Carstairs, Murray Guggenheim, L. H. and A. W. Armour, H. N. Baruch, Henry W. Savage, Arthur Curtis James, W. J. Matheson, Col. S. L. H. Slocum and many other prominent people. ***Ask us to submit the reasons for their choice.***

MATHIS YACHT BUILDING CO.

Specialists in Houseboats and Cruisers from 40 to 120 feet

COOPER'S POINT CAMDEN, N. J.

Hacker Runabouts Getting the Finishing Touches

This picture shows a corner of the big Hacker boat plant at Mt. Clemens, Mich., devoted entirely to producing the famous 21 foot Hacker runabouts. Here are some of the boats getting the finishing touches in paint and varnish.

Quantity production makes it possible to sell this boat for less than half of what it would cost under the one-at-a-time method of building. The beam is 5′ 8″ and draft only 16″ yet the high freeboard and V bottom design makes it very dry and seaworthy. The engine is a 20 H.P. Kermath, electric starting and lighting, giving a speed of 20 miles.

Price only

$1975

Plus tax
F. O. B.
Mt. Clemens

Designed and Built by John Hacker, N. A.

Order early

CENTRAL MARINE SERVICE CORP.

709 VINTON BUILDING DETROIT, MICH.

Get this L-A Engine Book

—it gives valuable information about motor boat engines. It also describes the full line of L-A inboard and outboard motors and tells of the 30 days' free trial plan.

Write for your copy today.
LOCKWOOD-ASH MOTOR CO.
2107 Jackson St. Jackson, Mich. (22)

The Compass For Your Boat

should be the best obtainable. For seventy years Ritchie compasses have been the choice of experienced navigators.

Select the Ritchie for your boat.

Our catalog will show you the one best suited for your needs. Send for a copy today.

E. S. RITCHIE & SONS
Established 1850
110 Cypress Street
Brookline, Mass.

Motor Boats, Row Boats, Hunting Boats, Fish Boats, and Canoes.

Special Boats for Outboard Motors, Motor Boats 16 to 24 ft. long. For lakes, rivers, shallow water and weeds.

Catalog Free. Save Money. Order by Mail. Please state what kind of boat you are interested in.

THOMPSON BROS. BOAT MFG. CO.
1907 Ellis Ave.
Peshtigo, Wis.

Write Us for Quotations

on any marine supplies or specialties you want—one or one hundred, any article or any quantity. We don't issue a mail order catalog because conditions, stocks and prices change too frequently these days—but we are here to give you intelligent service, prompt attention and honest prices on whatever you want.

Write us today

Anything for boat or ship, large or small. Honest Goods at Honest Prices.

BOSTON MARINE HARDWARE CO
259 Atlantic Ave., Boston, Mass.

DOMAN

OSHKOSH, WIS

DOMAN MARINE MOTORS
from 4 to 50 H.P.

There is a size to suit you. Write for literature. Doman engine division of

UNIVERSAL PRODUCTS CO.
Oshkosh, Wis.

The Barker Motor

(Two-Cycle)

"Have run my Barker Motor thirty thousand miles in ten years and it is good for ten years more."—Name on request.

Built for long service
Sells at low price

In New York:
TOPPING BROS.
122 Chambers St.

In Boston:
TOPPAN CO.
101 Haverhill St.

In Philadelphia:
KEAN, SHARON & CO.
144 N. Second St.

The BARKER FACTORY
Norwalk Conn.

Write for Barker's "Red Letter" Book of Motors

Money Saved Is Money Made

Complete Motor Boat Supply Catalogue Mailed Free

E. J. WILLIS CO. 85 Chambers St., New York

B. Schellenberg & Sons

EVERYTHING FOR THE PERSON OF THE YACHTSMAN, HIS OFFICERS AND HIS CREW

Clubs, yacht owners, commercial boat owners, should take advantage of our many years' experience in outfitting the mariner, both inland and deep sea.

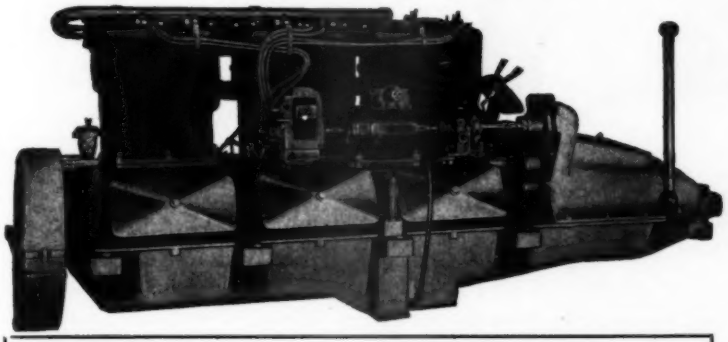
Crews and Club Attendants furnished without Charge.

B. SCHELLENBERG & SONS
99 to 105 Myrtle Ave., near Bridge St.
Brooklyn, N. Y.

Advertising Index will be found on page 110

WHAT do you seek in your power plant? — Reliability unquestionably comes first. For over 16 years the SCRIPPS has been foremost in this respect. It keeps on going without frequent tuning up or tinkering.

Is it economy? If so, Scripps engines operate on less than 2/3 pint per horsepower hour, and likewise, have the ability to handle low grade fuels like kerosene, distillate, etc. Not only low running costs, but low upkeep costs as well.



In order to show the world the reliability of our motors we built "The Detroit," a 35' x 8' motor boat, equipped with a 12-15 H.P. SCRIPPS MOTOR, and ran her, under her own power, every inch of the distance from Detroit, Michigan, to St. Petersburg, Russia, (now Petrograd). The start was made from Detroit on July 2, 1912. She arrived in St. Petersburg September 13, 1912—6008 miles with ABSOLUTELY no trouble. Ask Thomas Fleming Day, her skipper, or Walter Moreton of Boston, they will tell you. No other manufacturer has dared to attempt a similar demonstration of reliability. A Scripps Motor will run when nearly upside down, as demonstrated by Larsen's trip through the Niagara Rapids in October, 1911. Do these wonderful demonstrations of reliability and stamina mean anything to you?

Is it long life? The very first Scripps engines built over 16 years ago are still in operation—they never seem to wear out, and the liner and for sale columns seldom, if ever, list a used Scripps engine for sale.

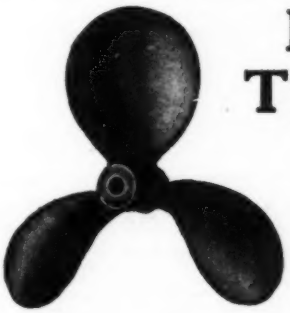
Is it motor convenience? All Scripps motors are electrically started—lubricated automatically by a pressure system that is perfectly clean—are full of pep—and operate smoothly and silently.

The SCRIPPS is unquestionably the greatest marine engine value obtainable at any price, and the new reduced low level schedule recently announced makes this high quality engine actually competitive in price.

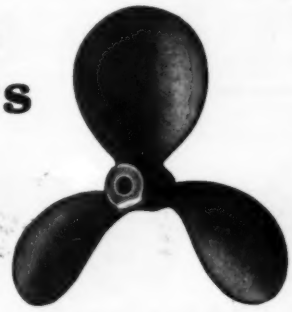
Investigate—there are power plants for almost every type of boat, either pleasure or commercial, in two, four and six cylinder, running from 10 to 125 horsepower.

SCRIPPS MOTOR COMPANY

5819 Lincoln Ave. **Detroit, Mich.**



Hyde Turbine Type Propellers



are stocked in every locality. The following is a partial list of firms carrying Hyde wheels. Consult your nearest dealer for information and prompt, courteous service.

PORTLAND, MAINE
Chas. F. Guptill Co.,
175 Commercial Street

NEW BEDFORD, MASS.
Hathaway Machinery Co.,
North Water & Elm Streets

PHILADELPHIA, PA.
Elisha Webb & Son Company,
136 South Front Street

CRISFIELD, MARYLAND
Clarence Sterling & Son,
1104 Main Street

SAVANNAH, GEORGIA
White Hardware Company,
25 Congress Street, West

NEW ORLEANS, LOUISIANA
Stauffer, Eshleman & Company,
511 Canal Street

WILMINGTON, CALIFORNIA
Fellows & Stewart

PORTLAND, OREGON
Oregon Marine & Fisheries Supply Co., 105 First Street

DETROIT, MICHIGAN
Belle Isle Boat & Engine Company,
East Jefferson & Parkview

CHICAGO, ILLINOIS
W. L. Masters & Company,
229 North State Street

BOSTON, MASS.
Rapp-Huckins Company,
59 Haverhill Street

NEW YORK CITY
W. C. Disbrow, Jr.,
8 Reade Street

BALTIMORE, MARYLAND
Unger & Mahon, Inc.,
Pratt & Gay Streets

NORFOLK, VIRGINIA
Gas Engine & Boat Corporation,
First Street near Front

MOBILE, ALABAMA
Marine Supply Company

HOUSTON, TEXAS
C. L. Bering Company,
1009 Capitol Avenue

SAN FRANCISCO, CAL.
Johnson, Joseph & G. M. Josselyn & Co., 56 Sacramento Street

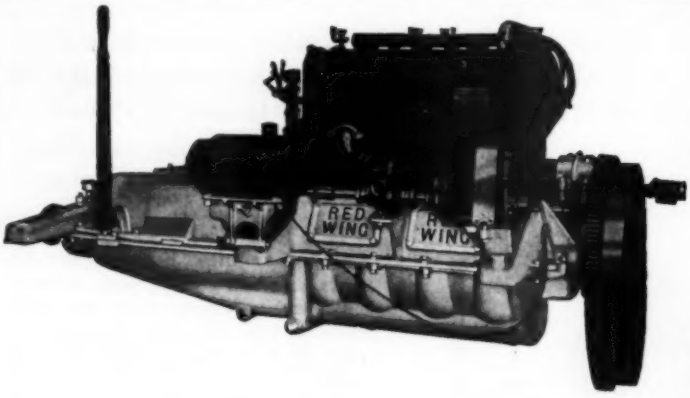
SEATTLE, WASHINGTON
Pacific Net & Twine Company
1213 Western Avenue

ALEXANDRIA BAY, NEW YORK
Hutchinson Bros.

MILWAUKEE, WISCONSIN
Joys Bros. Company,
201 East Water Street

Write for our booklet "Propeller Efficiency." It contains valuable information. A copy will be mailed on request.

HYDE WINDLASS COMPANY **Bath, Maine**



Red Wing Thorobred
THE MOTOR WITH POWER TO SPARE

When Women Drive A Boat

It takes a refined motor to win over the ladies—a motor that is "there" with the touch of a button.

The Red Wing "THOROBRED" is everywhere the favorite with the ladies for that very reason.

If you want an engine that is going to please the "women folks" do not overlook this element, so all-important, in your recreations.

A "THOROBRED" will never disappoint you.

One of our five sizes, from 10 to 40 H.P., is sure to fit your needs. Write today.

RED WING MOTOR COMPANY, Dept. B, Red Wing, Minn., U.S.A.

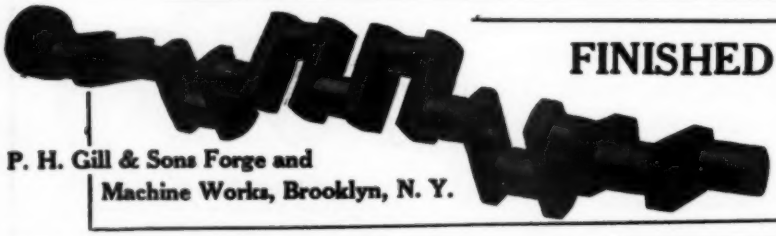
DOES YOUR BOAT LEAK?

Send for Booklets—"HOW TO MAKE YOUR BOAT LEAKPROOF," and "MARINE GLUE—WHAT TO USE AND HOW TO USE IT."—Each grade is for a different purpose. IT IS IMPORTANT THAT YOU USE THE GRADE WE RECOMMEND. Any old boat, so long as the frames are in fair condition, can be made water-tight by following the instructions in the above booklets. This applies to anything that floats, from a canoe to a yacht, wood or steel. Put your leak troubles up to us, we will help you to stop them.

JEFFERY'S MARINE GLUE IN ALL THE VARIOUS GRADES

For Sale by all Yacht, Boat and Canoe Supply Houses, Hardware, Paint and Oil and Sporting Goods Dealers

L. W. FERDINAND & CO. - - - - - - - - - 152 Kneeland St., Boston, Mass., U. S. A.



FINISHED CRANK SHAFTS

P. H. Gill & Sons Forge and Machine Works, Brooklyn, N. Y.

We are furnishing them to some of the leading marine engine builders. Carbon and Alloy Steel, Heat Treated to your own specifications. We grind all Pins and Bearings. Forged, machined, and finished complete in our own plant. Let us quote you.

The Belle Isle Bear Cat

has set a new standard in motor boats.

The design and balance of the mahogany and walnut hull, the consistent service obtained from the Hall-Scott marine motor, the richness and completeness of the equipment, together with the wonderful maneuvering ability of this craft makes the Bear Cat stand out in a class by itself.

A ride in the forward driving cockpit of this boat will give one an entirely new conception of motor boating.

BELLE ISLE BOAT & ENGINE CO.

9662 E. Jefferson Ave.

At Water Works Park Detroit, Michigan

The Motor of No Drawbacks

GIERHOLTT

Gearless Drive Outboard Motors

Marine City, Mich.

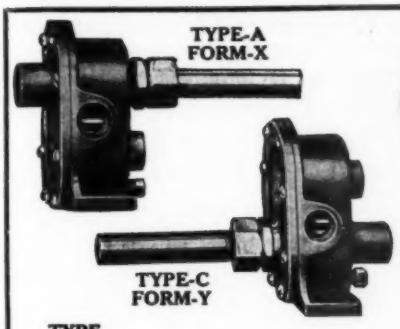
Solves:
The Starting Problem
The Weed Problem
The Shallow Water Problem

GEARLESS DRIVE

In carrying or installing position heaviest part weighs 40 lbs. All parts accessible. Carries like a hand bag. Detachable propeller shaft. Removable gas tank. Convertible to inboard. Write for particulars.

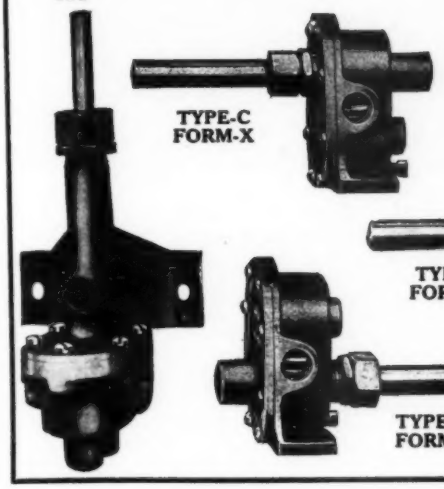
AGENTS WANTED

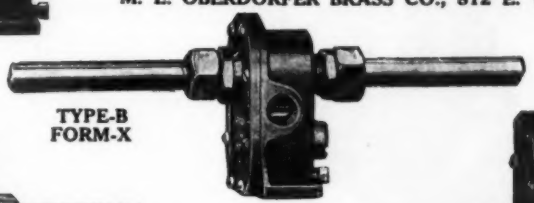
Advertising Index will be found on page 110

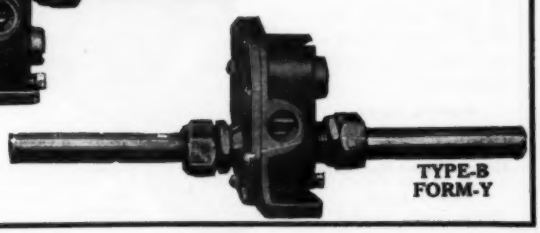


Oberdorfer Pumps

TYPE 100







The finest power plant made will not operate properly if it is equipped with an inferior pump, whether it supplies water, fuel or oil.

OBERDORFER BRONZE GEARED PUMPS

are built especially for marine use—they are made to withstand the hard service encountered in use on board boat—*Oberdorfer Bronze Geared Pumps* are noiseless, automatic, compact and reliable. The supply of water, fuel or oil is governed entirely by the motor—*there is never an over or under supply.* If you have ever had trouble with your pump you will find a world of satisfaction in the trouble-proof Oberdorfer.

If you own a boat powered with an internal combustion engine you will be interested in our new book on pumps. Your copy is ready for you—it comes *free* on your request.

M. L. OBERDORFER BRASS CO., 812 E. Water St., Syracuse, N. Y.

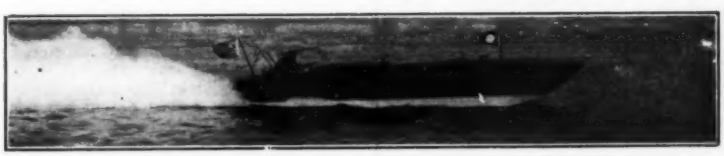
Inverted V-bottom and Surface Propeller Boats

SEA SLED

Hickman Patents in all countries

Trade Mark Reg. U. S. Pat. Off.

Every new Sea Sled makes a new Record



MR. HENRY B. PLANT'S THIRTY FOOT SEA SLED **MARATHON**

Carrying eight passengers this Sea Sled went from New London to Oyster Bay in two hours and seventeen minutes, returning the same day with seven passengers making the trip in two hours and twenty minutes. Average speed thirty-five miles per hour with engines **turning under 1400 r.p.m.** Full speed for this boat is at 1750 r.p.m.

Sea Sleds carry heavy weights at speed with minimum loads on engines.

THE SEA SLED COMPANY

WEST MYSTIC, CONN.

30 M.P.H. GUARANTEED
$650 COMPLETE

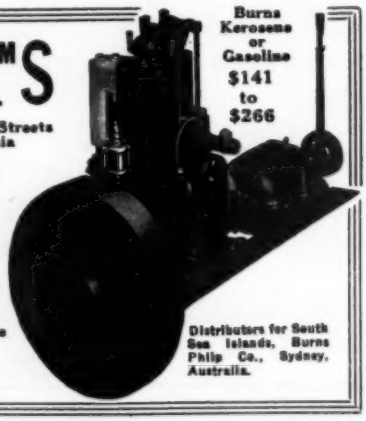
Newest Sensation. Airplane drive. 20 H.P. aircooled motor. From 12 to 15 miles per gallon. Runs in 2 inches of water. Capable of over 35 M.P.H. Write for photos and description. Immediate deliveries.

AERO-BOAT COMPANY
La Crosse, Wis., U. S. A.

MAYNARD-ADAMS ENGINE CO.
Eighth and Delaware Streets Berkeley, California

A high grade 3½ H.P. 4-cycle power plant. Ford replacements.

Eastern Agent
H. A. Westerman, Riverhead, N. Y.
Menge Marine Hardware & Supply Co., New Orleans.
Other agents wanted.



Burns Kerosene or Gasoline
$141 to $266

Distributors for South Sea Islands, Burns Philp Co., Sydney, Australia.

GENERAL LIGHTNING CUT PISTON RINGS

(1) The Lightning Cut
(2) The Wandering Oil Groove

will absolutely give you equa-radial pressure on your cylinder wall, obviate the loss of compression, and maintain the roundness of your cylinder.

The Wandering Oil Groove not only lubricates the cylinder wall, but effectively lubricates the ring itself, retaining the resiliency of the metal and avoiding friction.

General Lightning Cut Rings are guaranteed to give the best possible results. Properly fitted and used, they will effect economy in many ways. ***Write us for further information***

GENERAL UTILITY CO., *Manufacturers*
1326-28-30 Ogden Street, Philadelphia

McMILLAN YACHT BLOCKS

Lignumvitae and Ash Highly finished

All style fittings

Made in small and large sizes

Refer to Dept. Y

W. H. McMillan's Sons
153 South St. New York **40 Penn St. Brooklyn, N. Y.**

Misfortune Overtakes Hippocampus

(*Continued from page* 54)

The dink was turned over to Andrews, another Jacksonville builder, and before we were again ready to sail she was floating as saucily as before under our counter, a new sternpiece of cypress replacing the broken part. Priming and paint were applied to our side and deck, and on Sunday morning, one week behind schedule, we said good-bye to Donnie for the second time and renewed our travels.

Needless to say, if we had had the ordering of events apportioned us by destiny we should have omitted what Paul calls "rocking the boat." But having already learned in stress of weather what the little yawl is good for, we now know what she is made of, and we are more than ever confident that the staunchness of her timbers will carry us to the journey's end.

One word more to close the episode of the avalanche. As we were limping away from Mayport on our return trip to Jacksonville a shrill-voiced lady of the port called after us, "Well, I guess you'll know better next time than to tie to a rock barge."

Indeed we shall. And when passing under drawbridges of the lift type we shall expect them to fall on us. We shall be prepared for blizzards in the Tropics and tidal waves in the Panama Canal, and on every point we shall try to meet the unexpected more than half way. Anticipation is only one of the many joys of cruising.

Weather Wisdom

(*Continued from page* 17)

defined or raised, and distant sounds very clear, are signs of wet and probably wind before long.

Unusual twinkling of the stars, halos, wind dogs and rainbows usually precede more wind and possibly rain.

Dew indicates fine weather. Its formation practically never begins under an overcast sky or when there is much wind, although it may do so when a warm moist south wind sets in over cold ground or buildings.

Couplets which are usually correct are:

Rain before seven,
Clear before eleven.

* * *

First the rain and then the wind,
Tops'l sheets and halyards mind.
First the wind and then the rain,
Set your royals and skysails again.

A little study of the weather signs round about us will often save disappointments, will help in planning for cruises, will save us hours of watering the garden unnecessarily and is extremely interesting in itself.

"He causeth the vapors to ascend from the ends of the earth; He maketh lightnings for the rain; He bringeth the wind out of His treasuries."—*Psalm CXXXV. 7.*

Lightnin, the Gas-Electric Cruiser

(*Continued from page* 19)

power plant, are each contained within a small water-tight compartment, and the boat can actually proceed under its own power when fully water logged.

The power plant illustrates the ingenuity and skill of the designer to the fullest extent. In this it was sought to secure the quietest running possible with a minimum of motor maintenance and annoyance. To this end the main drive consists of a 10 H. P. electric motor installed in a water-tight compartment. The power for operating this motor is obtained from two 4 K. W. Universal electric generating sets. Each of these operates at 110 volts and approximately 37 amperes for full load and they are so connected that it is possible to operate the boat at half speed by the use of either one or at full speed when both sets are operating in series at 220 volts. The advantage of duplicating the power plant are many. In the first place, chance of a shut down or delay on account of power trouble is almost if not quite eliminated. The reduction in the size of the generating sets when two are used is such that it can be stowed in such a space as to be practically entirely out of the way. In fact, anyone coming aboard for the first time would have some little difficulty in discovering the source of power.

The control of the motors is automatic, that is, they operate continually under the control of a governor without adjustment of spark or throttle. The automatic governor with a fixed spark Bosch high tension magneto maintains a uniform speed at all times.

When a visitor comes aboard for the first time, either gentleman or lady, and they have expressed their admiration, the lady is asked to sit in the operator's seat which is exactly simi-

(*Continued on page* 84)

Advertising Index will be found on page 110

Spendthrift II Philbrin Equipped Wins Block Island Race

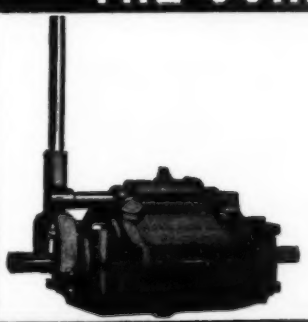
"SPENDTHRIFT II", owned by W. R. Halsey, won 115-mile Ocean Race of New York Athletic Club, July 9th, 1921. Powered with Van Blerck Motor, PHILBRIN IGNITION EQUIPPED.

The Better Makes of Marine Motors are Equipping with PHILBRIN IGNITION.

PHILBRIN

PHILBRIN CORPORATION
Kennett Square - - Penna.

THE JOHNSON MARINE REVERSE GEAR



The Four Exclusive Johnson Features

Johnson Friction Clutches
Alloy Steel Gears and Shafts
Ball Bearings
Completely enclosed design

Our formula for smooth operation, economy of power, and long, unfailing service.

Write Department 25 for our Catalog

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Yacht Construction ***Repairs, Outfitting, Storage***

PORT JEFFERSON MARINE RAILWAY CO.

PORT JEFFERSON, N. Y.

Large Railway 1000 tons cap'y, 15 feet draft.
Small Railway 300 tons cap'y, 10 feet draft.

Gasoline, water, yacht supplies ***Excellent harbor, all facilities***

Motor-boats **Sailboats**
"V" Bottom Hydroplanes
CABIN CRUISERS
of all types made from our plans or to your design. Let us tender on your new boat.

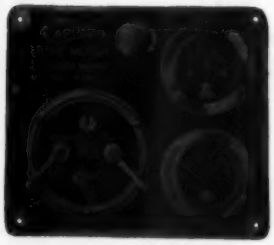
CANADIAN BOATS
Can be laid down in U. S. cheaper than U. S. boats of the same quality and workmanship. Write for our Catalogue.

WALTER DEAN CANOE & BOAT CO., Ltd.
TORONTO "Boat-builders since 1838" **CANADA**

"The Capitol"

A Marine Unit Power Plant

For Speed Runabouts and High Class Cruisers



Dash instrument and switch plate controlling ignition, lights, ammeter, oil gauge and dash lights

COMPLETELY ENCLOSED—COMPLETELY EQUIPPED

FROM the first glance the Capitol inspires the confidence of marine engine buyers. Its clean cut, well proportioned exterior with every moving part enclosed and every accessory built in immediately suggests the fact that it is the product of master designers. There isn't a smoother, quieter running marine engine. Vibration and noise are eliminated by perfect balance of moving parts, wide-faced helical-cut timing gears, force feed lubrication, ball bearing universal joint, three point suspension, and many other improvements over ordinary construction.

Highest Grade Equipment

Delco ignition, Atwater-Kent two-unit starting, lighting and generating system, Willard storage battery, Stromberg or Schebler carburetor, instrument plate shown above and all other necessary equipments are included.

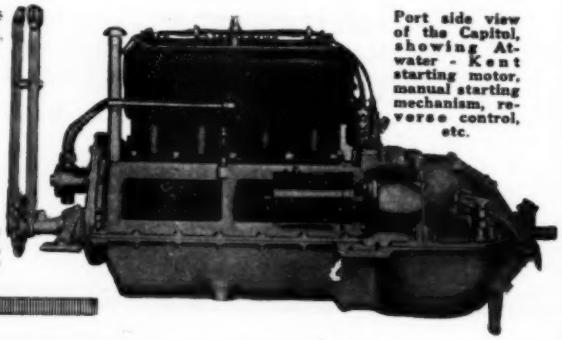
If you own or are planning the kind of a runabout or cruiser that deserves a really excellent power plant, you should know more about the Capitol, its special features of construction and how it is built.

Bore 4¼" Stroke 5½"

High Speed Model 60-65 H. P. at 2000 R. P. M.
Medium Speed Model 30-34 H. P. at 1000 R. P. M.

Write today for complete description and prices

Auto Engine Works, St. Paul, Minn., U.S.A.



Port side view of the Capitol, showing Atwater-Kent starting motor, manual starting mechanism, reverse control, etc.

Eastern Representatives: Ventnor Boat Works, Atlantic City, N. J.; Fred C. Duclon, Alexandria Bay, Jefferson Co., N. Y.; Gray-Aldrich Company, Inc., 84 Atlantic Ave., Boston, Mass. Canada: The A. R. Williams Machinery Company, Limited, 64-66 Front St. W., Toronto, Ont.

One Hundred Miles Through a Fog to a Protest

(*Continued from page* 12)

As mentioned previously, eight boats started. These are:

Spendthrift	W. R. Halsey	Orienta Y.C.	Van Blerck	4 cyl.	5¾x6	
Turtle	T. Farmer, Jr.	N. Y. A. C.	Van Blerck	4 cyl.	5½x6	
Kodak	R. J. Haslinger	Atlanta B.C.	Sterling	4 cyl.	4¾x5½	
Uthena	Dr. C. N. Platt	Harlem Y. C.	Red Wing	4 cyl.	4 x5	
Senator Bill	L. F. LaRoche	N. Y. A. C.	Scripps	4 cyl.	4¼x6	D.N.F.
Falcon	P. W. Johns	Hudson River Y. C.	Palmer	4 cyl.	5 x6	D.N.F.
Viva	A. R. Pettit	Tamaqua Y.C.	Bridgeport	3 cyl.	6½x7	D.N.F.
Lulamay	Dorward & Sefton	Bayside Y. C.	Buffalo	4 cyl.	4¾x5	D.N.F.

Viva had some little difficulty in the fog and finally anchored to await better visibility. They were much surprised to find Lulamay come out of the fog and tell them they were anchored right off shore near Orient Point. A council of war was held Saturday evening on board Lulamay and after computing the time to complete the run to Block Island and return back to New York, decided they would be unable to be in the city by Monday when the whistle blew and turned about then and there and started back. Apparently had they chosen to do so they could have continued and reached Block Island as they had navigated very well up to this point.

The Race on Turtle

By F. W. Horenburger

Amid an unusually heavy fog the race to Block Island was started on the afternoon of July 16. During the forenoon the usual excitement attendant upon such a race was everywhere in evidence. There were the last few gallons of gasoline to squeeze into the tanks, the bringing aboard of the last few items of provisions, the anxious awaiting of some belated member of the crews and similarly a more anxious awaiting of several boats which were to pick up additional crew members before the start. Several boats were known to have sailed for Travers Island and failed to arrive on time due to the heavy fog. The crews for these were taken on board the committee boat Albethwa and transferred later to their respective ships.

For the first time in motor boat racing the new rule adapted at the last winter's meeting of the American Power-Boat Association was being tried. This rule permitted the taking of the revolution rate of the motor during the progress of the race for the purpose of computing the rating and time allowance at the finish. Observers were named by each contestant who were distributed by lot on the other boats competing so that no observer sailed on the boat by which he had been nominated. The duties of these observers were to take and record the revolutions of the motor throughout the period of the race at intervals of about twenty minutes. The average of these maximum readings was to be used in the formulae.

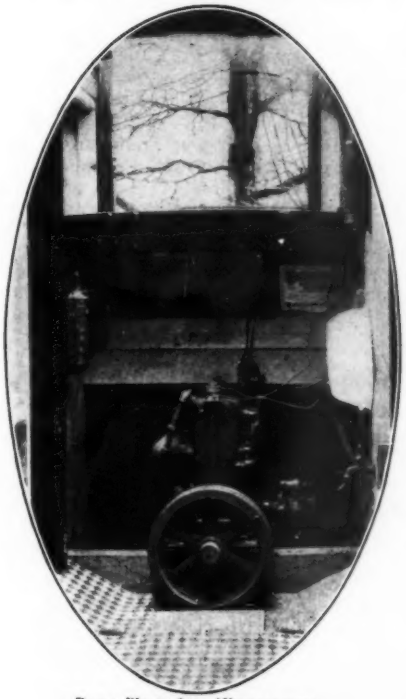
The results under this rule promise to be very satisfactory although the small number of boats finishing due to the fog can hardly be said to have given this method a thorough test in this instance.

The starting signals were made and all boats got away quickly after the gun at 1:00 P. M., all straightening out promptly on their several courses after the confusion at the start. Spendthrift II took the lead followed closely by Turtle and Senator Bill. The fog lifted slightly for a time and it was possible to keep the other boats in sight for a time. Everything was running smoothly on board Turtle when the motor suddenly stopped as though the ignition had been cut off. A hasty investigation disclosed that the pressure fuel feed device had failed to function. This was quickly remedied but the device was not satisfactory as it failed again later several times, causing a slight delay each time. It would seem that gravity is the most dependable method of getting fuel to a motor. Gasoline will run down hill but to get it to run up hill introduces complication.

In navigating down the length of Long Island Sound our course had been laid to bring us about half way between Stratford Shoal and Old Field Point. On arriving at Stratford we observed that our course had carried us too far to the north and this was corrected to hold us more to the south. Unfortunately the correction to the south was too great and in the vicinity of Orient Point the beach of Long Island suddenly loomed up out of the fog only a few lengths ahead. Quick action turned the boat away and Turtle continued along the coast line and presently picked up a fog trumpet. Our position was assumed to be somewhere in the Race along Plum Island.

(*Continued on page* 76)

We Have a Palmer Ready for Your Boat



Power Plant of the Hippocampus

No matter what use you put your boat to one of the Palmer Family will serve the purpose with 100 per cent. dependability and economy.

1 to 6 Cylinder–2½ to 85 Horsepower

Information as to the most suitable power plant for your boat as well as our Reduced Price List will gladly be sent you.

PALMER BROTHERS ENGINES, Inc.

COS COB, CONN.

Branches and Distributers

New York Norfolk Seattle Vancouver
Philadelphia Baltimore Portland, Me.

G.H.MASTEN CO., Inc.

Masten
TRADE MARK

Only type that has Government Approval for Overseas.

New York Distributors for

Caille Motors and Regal Gasoline Engines

Caille 5 Speed Outboard Motor

Manufacturers of

Motor Boat Tops, Spray Hoods, Life Rafts, Life Preservers, Cushions, Swimming Belts, Cabin Upholstery, Draperies. Builders of Row boats, Motor boats, Runabouts, Cruisers

MASTEN REVERSIBLE LIFE PRESERVER

Learn to swim in half an hour with a Masten's "Liberty" Swimming Belt.
Your dealer will supply you.
Or $2.00 by mail

For Inland Waters, Rivers and Harbors equip your boat with Masten Government Approved Life Preservers

For sale by leading dealers

G. H. MASTEN COMPANY, Inc.
38 EAST 9TH ST., NEW YORK, N. Y.

Whale—A Big Little Cruiser

(*Continued from page 36*)

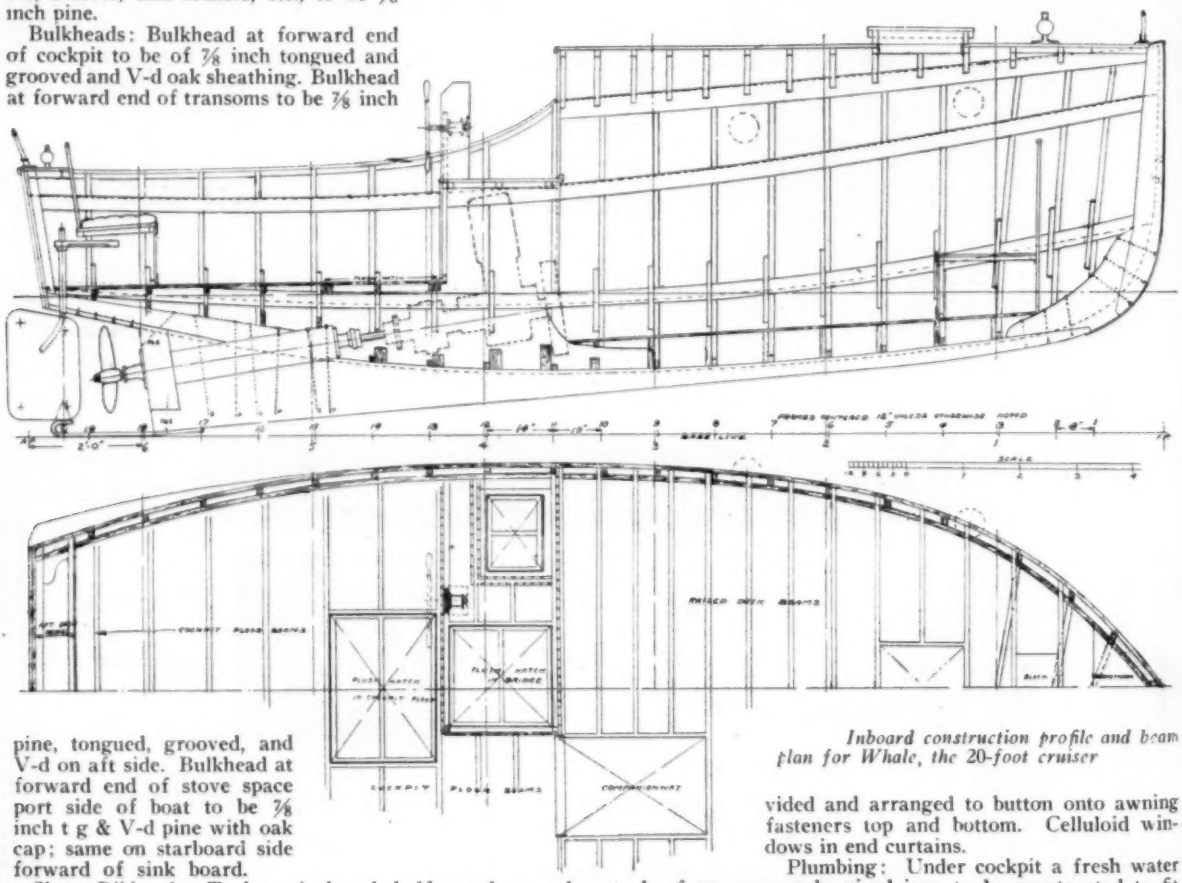
cockpit floor framing and that framing of hatch bears against cockpit floor framing so that weight is not all taken by flooring.

Cockpit Rail Cap: Sides of cockpit to be formed by carrying side of boat up. Over heads of frames 1¼ by 1½ inch pieces to be fitted, to form nailing strip for ceiling. Oak rail cap 4 inches by ⅞ inches to be screwed in place.

Ceiling: Cockpit to be ceiled with ⅜ inch t & g cypress sheathing fastened with brads. Cabin ceiled with same kind of material.

Seats, Transoms, Lockers, Etc.: Seats and transoms to be framed out with 1 inch by 1¼ inch oak, with ⅝ inch fronts made in the form of hinged doors in the cabin and tongued and grooved staving in the cockpit, and to have ⅞ inch top and finishing pieces of ⅜ inch by 2½ inches. Lockers, shelves, dish lockers, etc., to be ⅝ inch pine.

Bulkheads: Bulkhead at forward end of cockpit to be of ⅞ inch tongued and grooved and V-d oak sheathing. Bulkhead at forward end of transoms to be ⅞ inch pine, tongued, grooved, and V-d on aft side. Bulkhead at forward end of stove space port side of boat to be ⅞ inch t g & V-d pine with oak cap; same on starboard side forward of sink board.



Inboard construction profile and beam plan for Whale, the 20-foot cruiser

Sheer Ribband: To be 2 inch oak half-round securely screwed in place.

Grab Rail: On raised deck an oak grab rail 1½ inch thick to be screwed to beams.

Steering Gear: A galvanized steering wheel 20 inch size to be mounted on oak board 2 inches by 5 inches secured to aft side of bridge deck. Galvanized flexible tiller rope ¼ inch diameter to be led along aft end of bridge deck and along port side to a 12 inch quadrant tiller, then from tiller to sheave on starboard side of boat, then across boat to sheave and then along port side forward to sheave opposite steering wheel, then to wheel. A turnbuckle shall be used in line. Board on which steering wheel is mounted to be well secured and gear to be boxed in to form box 6 inches square and compass and binnacle mounted on top.

Rudder: Rudder stock to be 1 inch diameter bronze or brass with brass pipe port to fit, port screwed into horn timber and fitted with lock nut on lower end under horn timber and with pipe cap bored to fit the rudder stock at top, packed with grease, and supported by oak plank across boat under quadrant. Rudder blade to be 3/16 inch brass plate riveted to split stock and with pin secured at bottom. Skeg to be ⅜ inch by 2 inch brass.

Cushions: To be 3 inch thick, filled with kapoc and covered with khaki.

Awning: Galvanized ½ inch pipe frames to be in one piece from one rail cap to the other with galvanized sockets each end. At corners each side to be bent to radius of about 6 or 8 inches. Fore and aft spruce battens or slats ½ inch by 2 inches to be secured to frames spaced 18 inches. Over slats 12 ounce waterproof khaki awning to be stretched, secured each side to lower slat by brass awning fasteners. Khaki side curtains and end curtains to be provided and arranged to button onto awning fasteners top and bottom. Celluloid windows in end curtains.

Plumbing: Under cockpit a fresh water tank of 15 ounce galvanized iron to be constructed to fit space shown. Tank to have vent, filling pipe threaded into cockpit floor and into bushing on tank, outlet with ½ inch galvanized pipe led to galley pump beside sink. Sink to be 12 inches by 12 inches arranged with drain overboard, drain to have check valve installed to prevent water entering drain pipe from outboard. Under the forward end of the transom a Bow type water closet to be installed under hinged cover.

Fuel Tanks: Under side seats in cockpit two 15 gallon 10 inch by 48 inch seamless steel fuel tanks to be installed in pine chocks and held in place by galvanized steel straps; each tank to have vent, filling pipe threaded into seat top and into bushing on tank, each to have outlet with shutoff cock, seamless copper tubing led to common tee near center line of boat, then forward to shut-off cock and strainer then to carbureter.

(*Continued on page 74*)

Skaneateles Boats

Our Outboard Motor Boats

The standard by which others are judged

are absolutely the best outboard motor boats built in the world today. They are sixteen feet long and have a beam of four feet. The stem keel and transom are made of selected white oak. The decks are mahogany or butternut. The seats of cypress. The planking is selected white cedar and all fastenings are of copper. Our lap strake model is copper riveted and burred at the ribs and the carvel built ones are copper riveted and burred at the bilge. The trimmings are of polished brass or nickeled brass. One pair of eight-foot selected spruce oars are included in the outfit. The finish is in the natural wood, with best spar coating. The boat weighs approximately 150 pounds. So great is the demand for these boats that we have put our entire force of boat builders, building them only. Price f.o.b. Skaneateles, all crating and war tax paid, $181. If an Evinrude two horsepower automatic reverse engine is included, the price is $275 for the outfit, all war tax and crating charges paid.

Telegraph orders shipped out the same day as received and we guarantee the outfit unconditionally the best in the world for the money. The buyer can be his own judge.

In our twenty-eight years of business we have never had a dissatisfied customer.

We have at all times a large stock of white cedar rowboats, catboats, sailboats, dinghies, yacht tenders, 18-foot raised deck cruisers, etc., for immediate shipment. If you want something quick, wire us your needs at our expense and we will guarantee satisfaction.

SKANEATELES BOAT *and* CANOE CO.

SKANEATELES, N. Y.

"Builders of the Finest Rowboats in the World"

BRENNAN MOTORS

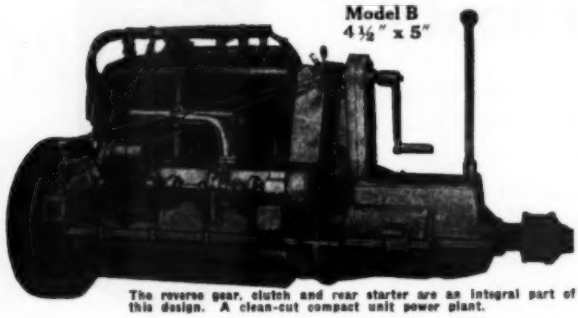
20% REDUCTION

A BIG cut in price, but no cut in quality or service. It's our contribution to the new price levels everyone is looking for.

Now you can have a brand new Brennan Motor and **enjoy it this season.** Immediate shipments.

Write today for complete catalog and new prices

BRENNAN MOTOR MFG. CO.
SYRACUSE, N. Y., U. S. A.
Cable address "Binot"



The reverse gear, clutch and rear starter are an integral part of this design. A clean-cut compact unit power plant.

GRAY-ALDRICH COMPANY, Inc.

84 Atlantic Avenue **Boston, Mass.**

Rebuilt Engines

All engines thoroughly rebuilt unless otherwise specified.

262	12 H.P.	Fairbanks-Morse Type "T" Special Elec. Stationary kerosene	$450.00
271	9 H.P.	Fairbanks-Morse Type "T" Special Elec. Stationary kerosene	425.00
272	6 H.P.	Lathrop Standard Model	150.00
275	80 H.P.	Wolverine, 3 cyl. 4 cyc. Propeller & Rev. Gear	2,500.00
277	16 H.P.	Lathrop, 2 cyl. 2 cyc.	285.00
287	24 H.P.	Lathrop, 2 cyl. 2 cyc. & rev. gear	425.00
298	24 H.P.	Lathrop, 2 cyl. 2 cyc. & rev. gear	450.00
299	24 H.P.	Lathrop, 2 cyl. 2 cyc. no rev. gear	350.00
300	3 H.P.	Faultless Seine Purser, 2 winch heads	135.00
302	5 H.P.	Wolverine with rev. gear	175.00
303	16 H.P.	Lathrop, 2 cyl. 2 cyc. with coupling and propeller	310.00
307	16 H.P.	Lathrop, 2 cyl. 2 cyc.	267.00
312	20 H.P.	Lathrop, 2 cyl. 2 cyc.	380.00
313	24 H.P.	Lathrop, 2 cyl. 2 cyc.	420.00
314		48" x 32" p. Hyde Right Hand propeller, 3 blade, bored	150.00
325	11 H.P.	Knox, 2 cyl. 2 cyc. shaft & propeller (as is, in good running order)	150.00
326	20 H.P.	Regal, 4 cyl. 4 cyc. with rev. gear & magneto (as is, in good running order)	450.00
329	24 H.P.	Lamb, 4 cyl. 4 cyc. with rev. gear	498.00
331		Paragon Reverse Gear Model "C"	75.00
332		Paragon Reverse Gear Model "C"	75.00
337	16 H.P.	Lathrop, 2 cyl. (not yet overhauled)	
339	12 H.P.	Lathrop, 2 cyl. Light Model with shaft & propeller	225.00
340	11 H.P.	Murray & Tregurtha, 2 cyl. 4 cyc. Reverse Gear and Magneto (as is, not overhauled)	250.00
341	150 H.P.	Van Blerck, Model EE-8, 6 x 6, Brand new with electric starter	1,665.00
342	160 H.P.	Van Blerck, Model J-6, 6 x 6, factory rebuilt, electric starter, no storage battery	1,250.00
343	215 H.P.	Van Blerck, Model E-8, 6 x 6, new with electric starter	1,765.00

TRENHOLM FUEL VAPORIZERS for using kerosene fuel on four cycle engines. Vaporizer circular on request.

Peoria, the Mecca of Class Boat Racing

(*Continued from page* 29)

Summary of Competitors in Annual Regatta of Mississippi Valley Power-Boat Association:

Class	No. of Entries	Maximum No. of Starters	No. of Boats Finishing Both Heats	Number of Finishers Deducting Boats from lower classes which competed in larger class
104 cubic inches	3	3	2	2
151 cubic inches	8	4	3	3
215 cubic inches	8	5	3	0
320 cubic inches	11	3	3	3
478 cubic inches	8	3	3	0
705 cubic inches	18	7	3	3
1300 cubic inches	16	6	3	1
President's Trophy	19	3	1	0
Runabouts	4	3	3	3
Webb Trophy	19	3	1	1
Cruisers	3	2	2	2
Total	117	42	29	18

Twenty-two different boats actually started if the boats racing in more than one class were deducted. Average per class=2 boats.

First Day Results

Class 104—5 *Miles*

First—Buddy, Phil Becker, Jr., Peoria, Ill. Time—First lap, 6:31; course, 14:16; 21 miles per hour.

Second—At-a-Boy, Phil M. Lown, Waterloo, Ia. Time—First lap, 7:51; course, 15:7 2-3; 19.18 miles per hour.

Ugly Duckling, Harry Gody, Davenport, did not finish; engine trouble.

Class 151—5 *Miles*

First—Margaret III., L. E. Selby, Pekin, Ill. Time—First lap, 4:26; course, 9:16; 32.4 miles per hour.

Second—Miss Quincy IV., C. E. Padgett, Quincy, Ill. Time—First lap, 4:31; course, 9:16; 30.4 miles per hour.

Third—Miss Peoria, R. H. Daniels, Peoria, Ill. Time—First lap, 4:38; course, 9:28; 31.6 miles per hour.

Fourth—Muggs II, Good and Peterson, Moline, Ill. Time—First lap, 5:9; course, 9:57 3-5; 32.4 miles per hour.

Class 215—5 *miles*

First—Miss Quincy IV, C. E. Padgett, Quincy, Ill. Time—First lap, 4:31; course, 9:18; 32.1 miles per hour.

Second—Margaret III, L. E. Selby, Pekin, Ill. Time—First lap, 4:36; course, 9:21.

Third—Miss Peoria, R. H. Daniels, Peoria, Ill. Time—First lap, 4:36; course, 9:21.

Fourth—Muggs II, Good and Peterson, Moline, Ill. Time—First lap, 5:11; course, 10:36 2-5.

Ugly Duckling did not finish.

Class 705—10 *Miles*

First—Docs, Drs. L. R. Van Sant and W. B. Whipple, Peoria. Time—First lap, 3:25; second lap, 6:56; third lap, 10:30; course, 14:01 2-5; average speed, 42.6 miles per hour.

Second—B B II, J. B. Bartholomew and Bryant, Peoria. Time—First lap, 3:34; second lap, 7:29; third lap, 11:11; course, 14:56.

Third—The Famuss, Dr. W. W. Cutter and Faber, Peoria. Time—First lap, 3:28; second lap, 7:06; third lap, 11:15; course, 15:29.

Fourth—Miss Virginia, M. R. Ellis, Peoria. Time—First lap, 4:44; second lap, 9:42; third lap, 14:27; course, 19:22 3-5.

Ethel IX, C. P. Hanley, Muscatine, Ia.; Mr. Quincy, C. E. Padgett, Quincy, Ill., and Black Diamond, Charles Barrick and Frank Webber, Peoria, did not finish.

(*Continued on page* 90)

Whale—a Big Little Cruiser

(*Continued from page* 72)

Ports: Four 6 inch galvanized hinged port lights to be installed with rubber gaskets under flange, and with brass ring over outside edge.

Hardware and Equipment: Galvanized 4 inch bow chocks. Galvanized 2½ inch chain deck pipe for passing anchor rope into rope locker. Three galvanized 5¾ inch bitts. Three brass flush rings 1½ inches by 1¾ inches for flush hatches. Necessary cup hooks and coat and hat hooks. One 8 foot boat hook. One 4 inch liquid compass. One 1 2/3 foot by 2½ foot American yacht ensign. Fog horn. One 40 pound kedge anchor and sufficient length of ¾ inch diameter manila cable to suit local conditions. Two 30 foot manila docking lines. Fog bell, 6 inch size. Whistle or electric horn. Two Books of Pilot Rules. Fire Extinguisher. Six life preservers, or more. Set of oil running lights and galvanized anchor light. Light screens. Flag pole sockets with poles.

Painting and Finish: Entire interior of hull to receive two coats of lead priming paint.

Exterior of hull to receive one coat of lead priming paint and at least three coats of yacht white above the painted water line, or yacht black to main sheer ribband with white above, or as otherwise desired by owner.

Cabin interior to be finished with at least four coats of flat white with trim of oak or cypress finished natural, or as otherwise desired by owner.

All exterior natural finish to be given three coats of best spar varnish.

Raised deck given three coats of gray or salmon color deck paint. Interior of all lockers, space under transom, rope locker, etc., painted one coat of lead priming paint.

Under side of cabin roof painted at least three coats of white paint tinted very slightly green.

Motor Installation. Boat is designed for a motor of either two or four-cycle type developing from 6 to 15 h.p. at from 400 to 1,000 r.p.m. Such a motor will drive the boat at speeds varying from 6 to 9 miles an hour. The choice of propeller and the motor installation should be made only after consulting the Editor or the designer.

Advertising Index will be found on page 110

In Price, Appearance and Performance Here Is the Season's Big Sensation

THIS is the standardized 26 foot Express Runabout, designed and built by Chris Smith, the "speed wizard of Algonac." Every detail is the result of his many years of successful boat building with the result that this wonder boat embodies the best points of the best boats, yet sells for about one-half of what you would expect to pay for such a boat. Standardization alone has made possible the comparatively very low price.

We invite you to compare the design, workmanship and performance with any other boat to be had at any price knowing that at every point this Smith boat will prove to be an easy winner.

For example, in design there can be no question as to Chris Smith's genius—one has but to recall the wonderful success of his national and international champions, Miss America, Miss Minneapolis, Miss Toronto, Miss Detroit, Gar, Jr., Gar, Jr. II and many others.

In workmanship, it has been an outstanding feature of all Smith boats that they have always stood up under the hardest tests yet are most beautifully finished.

In performance, there is no other 26 foot runabout with a 4 cylinder engine that can equal the speed of this boat, take the short turns so cleanly, be so absolutely dry and seaworthy and ride so comfortably.

Its length is 26 ft., the beam 6 ft. 6 in., draft 22 in. V bottom, double planked, fully equipped for fresh and salt water. Seating 8 people comfortably. Guaranteed speed 30 miles (the tests showed 35 miles).

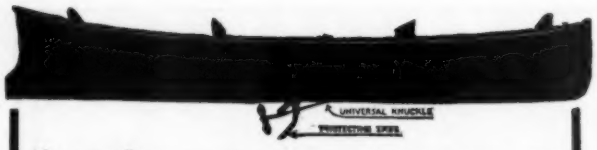
The power plant is the Hall-Scott 5¼ x 7 four cylinder 100 horsepower engine, complete with electric starting and lighting, standard reverse gear, water cooled exhaust manifold, 160 ampere hour battery. In fact a complete and perfectly operating power plant in every way.

The price on the standard finish boat (painted hull with mahogany trim) is only $3,950 f.o.b. Algonac, Mich., plus war tax. The special finish of full mahogany is $500 extra. Orders should be placed promptly to avoid disappointment from late delivery.

Address all inquiries for Smith built boats to

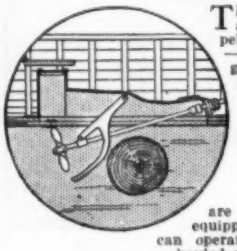
CENTRAL MARINE SERVICE CORP.

723 Vinton Building **Detroit, Mich.**



Anywhere you want to go—to those unexplored nooks that Nature loves so well

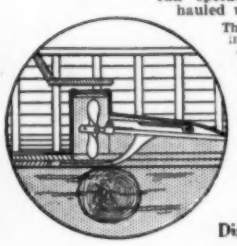
The Propeller Disappears



THE instant the protecting skeg touches a submerged obstacle it raises the propeller and propeller shaft into its housing—the engine is throttled—and the boat glides over snag, sand bar, weeds, rocks and sunken trees as easily and as comfortably as a skiff.

Disappearing Propeller Motor Boats

are compactly and sturdily built and equipped with powerful engines; yet a child can operate one with utmost safety. Can be hauled upon any beach or dock.



Three Bulkheads make these motor boats safe in any water.

Three Standard Models average length 17½ ft., average beam 4½ ft.

Powerful motor (3-6 H.P.) equipped with Maxim Silencer gives 20-25 miles per gallon of gasoline. One lever, any speed control from ½ to 9½ m.p.h.

Read "Vacation Days," that will introduce you to the delights of the out-of-door season. Copy free on request.

See a Disappearing Propeller Motor Boat demonstrated.

A limited number of agencies open.

Disappearing Propeller Boat Corporation
97 King St., W. Toronto, Canada
731 Main St., Buffalo, N. Y.

Michigan Marine Motor

Write for Folder Today.

The ENGINE You Have Been Waiting For.

$135.00

Repairs At Any Ford Garage

STURDY—RELIABLE—ECONOMICAL

4-CYCLE—4 H. P. WEIGHT 115 LBS.

Well Worth Investigating.

—USER OR DEALER—

MICHIGAN MARINE MOTOR CORPORATION

7235 E. JEFFERSON AVE. DETROIT, MICHIGAN

One Hundred Miles Through Fog As a Protest

(*Continued from page* 70)

The blast of the fog trumpet was timed and found to be three seconds. It was immediately concluded that this was Little Gull Light which has a three-second horn. After sailing along for a sufficient time the course was set for Block Island and everything was going along as nicely as possible under the fog conditions when suddenly another stretch of beach was discerned in the gloom ahead. The reverse gear was called upon this time to check the headway with the results that Turtle stopped before damage resulted. After getting away again we discovered where a serious error had been made. The fog signal on Orient Point is a three-second blast, that on Little Gull Island is also a three-second blast. Our neglect in failing to time the silent interval which is 17 seconds at Orient and 27 seconds at Little Gull caused us to confuse the signals and hastily conclude we were at Little Gull when we had only reached Orient Point. This error would not be possible in clear weather but under the conditions of fog prevailing it could have ended the race for us then and there.

After getting through The Gut we maintained a course for Block Island and were fortunate to get a good fix at Cerberus shoal buoy and on account of the heavy fog the speed had been reduced appreciably. We stopped well before reaching Block Island in order to take soundings and listen for the trumpet. This was finally picked up straight ahead of us and after some maneuvering to get around the unlighted end of the breakwater, the harbor was made and the race for us ended at about 2 o'clock A. M.

Experiences of Kodak

By Wm. E. Eldridge of Motor Boating

Though shipping only as an observer, every opportunity was offered me to enjoy each and every one of the pleasures, thrills and discomfitures in the engine room, galley and on the bridge during Kodak's run to Block Island.

Kodak, though small, is in every sense of the word a cruiser capable of going anywhere in any weather her owner and her gas supply will take her. Never once did her Sterling motor give a minute's trouble. The only time she was stopped was for the purpose of listening for the siren on a lighthouse which we knew we were due to pick up.

The first hours of the race were uneventful and we had little to do except watch out for steamers or other boats coming out of the fog. By four o'clock all the other contestants in the race had been lost to view. Spendthrift, Senator Bill and Turtle were ahead, while Uthena and Lulamay had been left somewhere in the fog astern. Viva we saw several times during the afternoon either to the starboard or port, the last time being about six o'clock when we found her along the Long Island shore.

Never during my boating experience have I seen such heavy and lasting fog. Such things as shore bearings were impossible. That our course was accurate at least as far as Plum Island Light was proven to us beyond any doubt. When due to arrive there the motor was slowed down and within a very few minutes we had the pleasure of hearing the siren and shortly after that saw the haze of the light.

Right here things happened. Owing to the fog it was decided to use the Gut instead of taking chances of meeting traffic in the Race. Carefully feeling our way along past the Plum Island Light, we came directly up to a fixed red which we took to be Orient Point Light. This almost proved disastrous. Instead of Orient Point Light the fixed red was on the breakwater at the entrance to Plum Island Harbor and we almost experienced the unpleasant sensation of climbing the rocks. However, luck was with us and by taking soundings every two or three minutes for nearly two hours and checking and rechecking our position, we decided we were safe and in the Atlantic and Zimmie put on full speed ahead and we were once again on our way.

Four hours was the time figured to reach Block Island Harbor Light. After three hours and forty-five minutes' run, the skipper decided to slow down. At five o'clock we picked up a light which we took to be the light on the end of the island. But we were again in error. The light we picked up was at the entrance to the harbor. Here it was decided to wait for a while in hopes that sunrise might bring a break in the fog. This, however, was not the case and after breakfast we hauled anchor and, under reduced speed, Kodak brought us all tired and soaked through, but safe and happy, past the committee boat—the first boat in Class B to finish and winner by a considerable margin.

I can think of no equipment that Kodak could possibly have to make a more complete cruiser except perhaps the writer on her next cruise to annoy the others.

Advertising Index will be found on page 110

BOSCH

The Stream of Fire That's Sure

Engine dependability when it's most vitally necessary finds its most dependable factor in Bosch Magneto Ignition. Bosch has meant absolute dependability, added power and economy to millions of gas engine owners. Bosch Magneto Ignition is quickly and conveniently available for your motor boat, automobile, truck, tractor or stationary engine. Insist on Bosch ignition equipment on any automotive product you buy —the nearest Bosch Service Station can make any installation in a few hours.

Be Satisfied ***Specify Bosch***

500 Service Stations in 500 Centers

American Bosch Magneto Corporation

Main Office and Works: Springfield, Mass.

Branches: New York, Chicago, Detroit, San Francisco

AMERICA'S SUPREME IGNITION SYSTEM

Motor Trucks, Tractors, Airplanes, Motor Cars, Motor Boats, Motorcycles, Gas Engines

Trade *Mark*

TIEBOUT FOR HARDWARE

Fortunate indeed is the boat-owner that started the season with *Tiebout Hardware* and fittings.

He is now reaping the reward of his foresight in selecting equipment with built-in ruggedness combined with good appearance — backed by our guarantee of lasting satisfaction.

W. & J. TIEBOUT

Established 1853 Incorporated 1892

118 Chambers St. New York City.

"Those who go to sea must be able to see."

Comet Marine Generators

A NEW LIGHTING UNIT

for the open motor boat or any installation where it is not convenient to install a regular switchboard.

MS Control on T-65 Generator

Comet Generators with MS CONTROL combine in one unit generator, reverse current relay, switch and fuse.

MS Control may be mounted on any size Comet Marine Generator. Easy to install, simple and efficient.

Send for Bulletin No. 5.

COMET ELECTRIC CO.

1241 St. Paul St. Indianapolis, Ind.

Many Pass Correspondence Course Examinations

(*Continued from page 22*)

errors. This is a very important branch of this subject, and one which is based upon facts and upon reason. Therefore, any rules which may be given for applying easterly and westerly variation or deviation should not be memorized without first determining the reasons for these rules. Once the reasons have been determined and understood a student should experience no further trouble or confusion in applying compass errors or correcting courses. We urge everyone to thoroughly study the text on pages 23 to 27, particularly the captions in connection with the illustrations. After becoming thoroughly familiar with these and especially the table shown in Figure 152 the student should work out some examples for himself. He should then practice some on board his boat if possible.

In connection with the text a number of simple examples have been given with the correct answers also given. The student should follow through these and if he arrives at the same answer he will know that his method of reasoning is correct.

As mentioned above, questions on Lessons No. 6 and 7 will be published in the September issue of MOTOR BOATING. Answers to these may be submitted any time after the receipt of the September issue of MOTOR BOATING. The names of those students whose answers are received during the month of September will be published in the November issue of MOTOR BOATING. Those answers received later than September 30th will be published in a subsequent number. Answers to any of the first five lessons received during the month of August will be submitted to the examiners on September 1st, and the names of the successful students will be published in the October issue of MOTOR BOATING.

The names of those students whose answers were received during the month of June, who have passed by at least eighty per cent, will be found on pages 80 and 82 of this issue.

We have had many, many requests for the correct answers to the questions which are being published in MOTOR BOATING each month. We intend to publish the correct answers in MOTOR BOATING but obviously we cannot do this until all those who desire to enroll in the course have done so. As enrollments are still coming in, we will plan to keep accepting these for some time to come. Therefore, the correct answers cannot be published for some time.

However, we are making arrangements to supply the correct answers by mail to all who desire them. We should like to do this free of charge but obviously the immense amount of postage, etc., required in handling this would make it impossible. Therefore, there will be a nominal charge of $1.00 made for a complete set of answers to all the questions. Upon receipt of $1.00 your name will be placed on the mailing list and the correct answers mailed to you from time to time.

The following rules must be complied with:

1. Only those enrolled and sending in answers to the questions published in MOTOR BOATING will be entitled to the sets of correct answers.
2. Answers will only be mailed after the receipt by us of the student's set of answers, that is, we will not mail the correct answers to Lesson No. 3, e.g., until we have received the student's answers to Lesson No. 3.
3. The answers must be held absolutely confidential and not used in any way which might be of assistance to those who have not sent in to us their answers.
4. The correct answers furnished by us are by no means the only ones upon which the examiners base the per cent marks given to the various examination papers.

If you would like to take advantage of the above offer, all you have to do is to send a letter with your dollar addressed to the Editor of MOTOR BOATING.

It would not be out of place at this time to mention that it is not too late to enroll in our Correspondence Course. All one has to do is to send his name to the Editor of MOTOR BOATING. Answers may be submitted at any time.

The following whose papers were received during June have passed lesson No. 1: Elsie L. Fenton, Albert Gayer, H. J. Hyde, J. W. Levasey, Jr., Homer Pritchert, H. S. Schuyler, John W. Shaw, Frank W. Ward.

The following whose papers were received during June have passed lesson No. 2; Mrs. Alice R. Burr, Elsie L. Fenton, H. J. Hyde, Samuel Morley, K. I. Murphy, F. J. Mackey, Arthur Peay, W. N. Shrum, Benjamin Tucker, D. E. Westervelt, Frank W. Ward, E. T. Youngfelt.

The following whose papers were received during June have passed lesson No. 3: A. F. Alexander, Henry Boche, Seymour M. Bradley, H. R. Broll, William A. Butler, George C. Bissett, E. M. Conner, E. Donkin, Charles B. Downes, Fred Dunnels, Arthur Ek, J. E. Gerich, W. H. Haller, Edwin Halliday,

(*Continued on page 82*)

Advertising Index will be found on page 110

A Smooth-Running Light Power Plant for Row Boats

The stream-line simplicity, mechanical beauty and marvelous performance of the ***Elto*** are factors which mark a new epoch in the universal popularity of outboard motoring.

Elto LIGHT TWIN OUTBOARD MOTOR

NEXT to light weight and convenient portability, there is probably nothing more desirable in an outboard motor than freedom from vibration and this has been ideally accomplished in Ole Evinrude's new ***Elto.***

The ordinary rowboat stern was not originally intended for an engine base and a vibrating motor not only gives much discomfort but makes actual danger imminent by shaking loose of the stern seams.

In planning the ***Elto,*** therefore, Mr. Evinrude was determined that this element of danger and discomfort should be removed, with the result that, through ingenious designing and cleverly balanced construction, he has created a motor which runs with a smoothness that is delightfully surprising.

The ***Elto,*** with its twin-cylinder opposed two-cycle motor perfectly balanced and with the explosions occurring at the same instant in each cylinder, fulfills the outboard motorist's long-cherished ideal of a smooth-running power plant for light water craft.

Further safety precautions are to be found in the ***Elto's*** tilting arrangement which allows the motor to be quickly and easily raised in beaching or poling over shallow places, while, in passing over hidden obstructions in the water, the tilting device permits the motor to oscillate gracefully without jarring the boat.

Think of these incomparable advantages and then remember that the ***Elto,*** when folded compactly for carrying, measures but 9¼ x 13¾ x 34 inches and weighs only 46 pounds.

By these betterments, the ***Elto*** commends itself to the outdoor man who seeks the utmost in an outboard motor.

Send for our Illustrated Booklet

Elto Outboard Motor Co.

Ole Evinrude, *President*

Mfrs. Home Bldg. Dept. F, Milwaukee, Wis.

"COMFORTABLY PORTABLE" --- WEIGHT 46 POUNDS

Many Pass Correspondence Course Examinations

(*Continued from page* 80)

W. Roy Halsey, Lester L. Harrington, Carl Holzkamp, J. A. Howland, J. Harrison, E. Haefer.

Frederick Lewis, George H. Leland, Carl T. Magee, Dr. T. D. MacSween, Samuel Morley, F. J. O'Brien, Edward J. D'Beirne, Harry Quick, George A. Rawson, Joseph Reinhardt, M. J. Ross, F. Rudolph, J. J. Rathbun, Walter E. Shannon, J. K. Sexson, W. Blood Smythe, Fred Scadden, John W. Shaw, Alfred A. Thomas, J. R. Taylor, Roy F. Wallace, F. B. Watson. passed lesson No. 4: Martin L. Anderson, R. Andren, A. F. Alexander, A. R. Burr, J. K. Calvert, Frank S. Cheney, Michael Cibener, L. L. Crosthwaite, Clarence W. Culver, F. H. Delano, W. W. Dickson, A. Dingman, E. Dunkin, J. Dunbaugh, Chas. B. Downes, Fred Dunnels, Mrs. William Divisdill, Arthur Ek, R. Finigan, Vincent Francis, W. R. Folson, Rudolph Frederick, W. J. Gorton, Chas. E. Grush, W. C. Gustofsen.

George F. Hacken, Rev. A. N. Halver, W. A. Haller, Edwin Halliday, W. Roy Halsey, Geo. Hansen, Wm. A. Hort, Geo. D. Hoyns, Carl Holzkamp, James B. Harper, E. Haefer, Millard R. Johnson, Edwin Jones, A. E. Jones, L. B. Larsson, Geo. R. Law, Jr., Geo. H. Leland, J. F. Lowcock, W. E. Landreth, W. B. Moores, D. E. McKenzie, John McHenry, Frank Mitchell, G. B. McCluskey, Edward Mathews, L. McKenzie, John A. Needham, Mason S. Noyes.

F. J. O'Brien, R. W. Poland, Andrew D. Porter, G. A. Patrie, Paul J. Pollinick, Harry Quick, J. Rawlinson, John Reicherter, R. B. Rives, Wm. W. Robson, John H. Rogers, Merle B. Moss, Edmund Roxby, J. J. Rathbun, G. Schumakoff, H. P. Shap, Walter E Shannon, S. E. Slocum, Dorothy O. Smith, Barbara J. Smith, H. R. Stiles, P. R. Stephensen, Walter Strauss, D. H. Swiler, H. S. Stanley, H. H. Sellew, Fred Scadden.

Douglas Taylor, Wm. H. Taylor, O. A. Thomas, Alfred A. Thomas, S. H. Thomas, Geo. H. Thurston, C. P. Tockildsen, F. B. Watson, L. E. Wilson, Frank W. Ward, Wm. O. Yates, C. S. Young, M. A. Young, E. T. Youngfelt, H T. Zachgo.

Conquering the Compass

(*Continued from page* 27)

occurs. Here we have three boats. In the first case, the boat is heading approximately North. The engine diagram is used to represent the center of magnetic attraction on the boat. When the boat is heading approximately North, as shown, the pull of this center of magnetic attraction will be exerted most strongly on the South point of the compass, and in the direction which is approximately Southeast. As the boat swings around to the easterly direction, it is apparent that the attraction is on altogether different points of the compass. Naturally, this will cause the compass to have a deviation decidedly different from that of the first case. As the boat swings around to a westerly direction, the pull of the magnetic substance on the boat is again different, and causes an entirely different effect on the compass. In other words, the deviation is different on every different heading.

It cannot be assumed that because we have one point westerly deviation when heading North we will have the same amount when heading East or South.

Determining Deviation (See Figs. 155, 156, 157)

The question now arises not only how to determine the deviation of one's compass, but how to correct the compass so that no deviation will exist. The former is simple, the latter, very complex and difficult. It is much simpler to determine the deviation, know how much it is, and let it exist, than to attempt to correct and compensate for this error on small motor boats.

(*Continued on page* 100)

Conditions for 1921 Regatta at Detroit

Open to Members of All Regularly Organized Yacht or Motor Boat Clubs

Event	Name of Trophies	Saturday, Aug. 27		Sunday, Aug. 28		Monday, Aug. 29		Tuesday, Aug. 30		Wednesday, Aug. 31		Lgth. of Lap	No. of Laps	Dist. Stat. Miles	Kind of Race	Course
		Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish					
A	Sallan Trophy.....	11:20	2:45			11:20	2:45	11:20	2:45			25	1	25	Handicap	Lt. Ship
B	Detroit Trophy.....	1:30	2:30			1:30	2:30	1:30	2:30			5	6	30	Flying start	Long River
C	Wood-Fisher Trophy.	3:00	5:00			3:00	5:00	3:00	5:00			2.5	20	50	Standing start	Short River
D	A.P.B.A. Gold Cup...	5:15	6:00			5:15	6:00	5:15	6:00			5	6	30	Flying start	Long River
E	Scripps Motor Co....			12:40	3:30							22.5	1	22.5	Flying start	Lt. Ship
F	Miller Chance Race..			3:40	5:00							2.5	4	10	Flying start	Short River
G	Mile Speed Trials....									10:00	1:00	1	6	6	Flying start	Mile course

Event	Name of Trophies	Thursday, Sept. 1		Friday, Sept. 2		Saturday, Sept. 3		Sunday, Sept. 4		Monday, Sept. 5		Lgth. of Lap	No. of Laps	Dist. Naut. Miles	Dist. Stat. Miles	Kind of Race	Course
		Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish						
H	B.I.T. Elimination...	3:00	5:00	3:00	5:00							5	8	40	46.06	Flying start	Long River
I	B.I.T. "Harmsworth"					4:00	4:40			4:00	4:40	5	8	40	46.06	Flying start	Long River
J	Detroit Evening News					1:00	3:30	3:00	5:00	1:00	3:30	5	6	30	34.55	Handicap	Long River
K	Sailing Chance Race..							12:30	2:30							Flying start	Cat Boat

A—For cabin cruisers as defined in 1921 rules of A.P.B.A., limited to a maximum speed of 17 miles per hour. Course out around Light Ship and once around Short River course on return.

B—For hydroplanes under 32 ft. with only one propeller and one motor not exceeding 2,000 cu. ins. piston displacement; all other conditions same as for A.P.B.A. Gold Cup (see A.P.B.A. 1921 rules).

C—Same conditions as for "Carl Fisher Trophy," excepting that any type of motor may be installed which does not exceed 3,000 cu. ins. displacement, not being limited to "stock marine motors."

D—For boats under 40 ft. (see A.P.B.A. rules and deed of gift).

E—For cabin cruisers as defined in 1921 A.P.B.A. rules; open to boats of any length under 46 ft. on waterline, equipped with a motor having a maximum piston displacement not exceeding 350 cu. ins.

F—No restrictions.

G—For boats qualifying under event "D" (see A.P.B.A. rules and deed of gift).

H—Elimination trial for selection of American team to defend the "Harmsworth" or British International Trophy.

I—British International Trophy Race. See Motor Boat Club of America rules governing deed of gift.

J—For runabouts of displacement type, having one or more motors not exceeding 940 cu. ins. displacement and an ability to run at a speed of not less than 12 nautical (13.82 statute miles) per hour. Every contestant is to sail over the course some time previous to Sat., Sept. 3, 1921, take his own time and hand it to the committee before 10:00 a.m. on that date. Every contestant will be allowed to reduce his handicap time 2% in any heat, without penalization, but if his time is reduced below the 2% allowed, the difference will be added to his limit time, and his position determined accordingly. This will not throw contestant out of any heat, nor the race, but automatically penalizes excessive speed.

Example:

Time turned in is 45 min. 2%=0.9 min. or 54 sec.

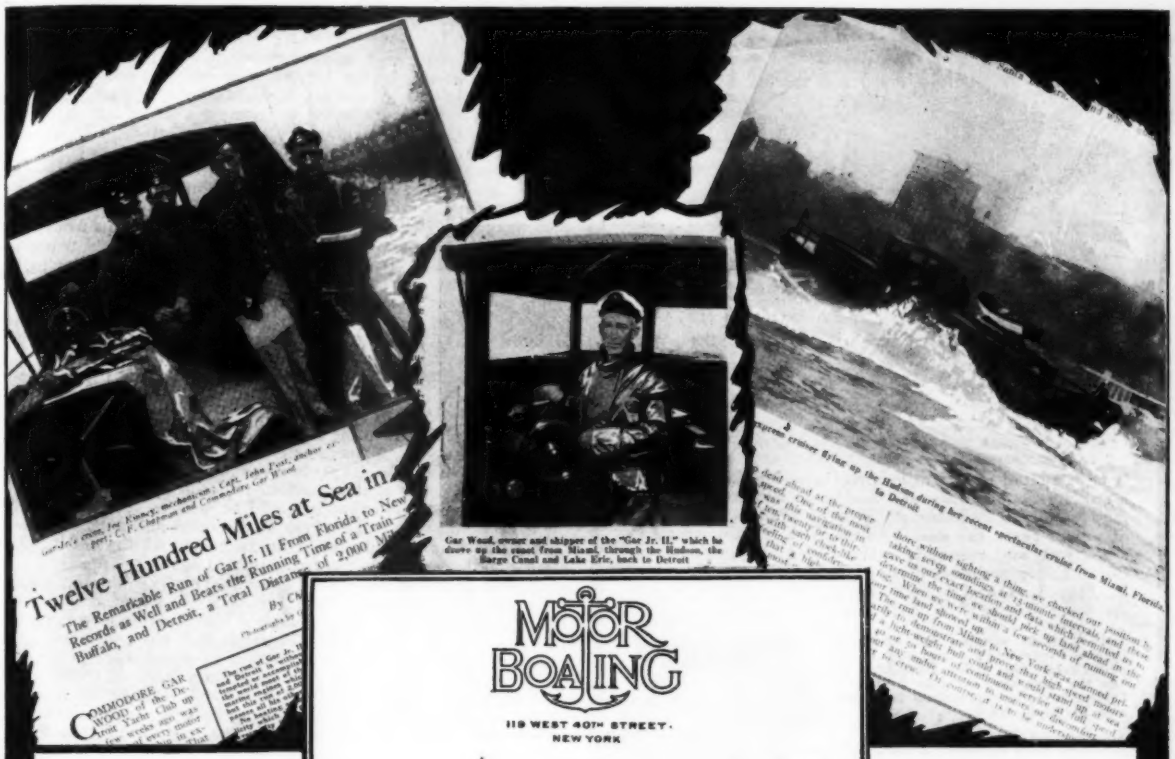
Limit time allowed is 45 minutes less 54 seconds, or 44 min. 06 sec.

Time actually taken in the race is 43:30, or 36 seconds less than the limit allowed.

Adding 36 seconds to 44:06 amounts to 44:42, or only 18 seconds less than the time turned in, or about two-thirds of one per cent net gain.

Boats will be credited points in each race, one point being given for entering, and one additional point for every boat defeated in each heat. The boat winning the most points in three heats will be awarded the trophy. In the event of a tie, it will be awarded to the most consistent performer of the boats tied.

K—For Class "R," Star, and Cat-Boats. Each class will be awarded a prize under same conditions as the Miller Chance Race on Aug. 28.


Twelve Hundred Miles at Sea in
The Remarkable Run of Gar Jr. II From Florida to New
Records as Well and Beats the Running Time of a Train
Buffalo, and Detroit, a Total Distance of 2,000 Mi
COMMODORE GAR WOOD of the De-
troit Yacht Club on
Gar Wood, owner and skipper of the "Gar Jr. II," which he
drove up the coast from Miami, through the Hudson, the
Barge Canal and Lake Erie, back to Detroit
A
cruiser flying up the Hudson during her recent spectacular cruise from Miami, Florida,
to Detroit

MOTOR BOATING

119 WEST 40TH STREET,
NEW YORK

June 27, 1921.

Prentiss-Wabers Stove Company,
73 Spring Street,
Wisconsin Rapids, Wisconsin.

Gentlemen:

I want to express to you my appreciation for what you have done for the motor boatmen of the country in perfecting your Auto-Kamp-Kook-Stove.

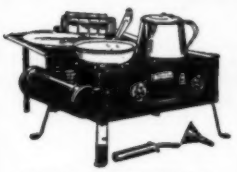
We used one of your outfits on Gar Junior II on our run up the Coast from Miami, Florida, to New York, in which we beat the running time of an express train between these two points. Although it was too rough most of the time while we were at sea to keep ones feet on deck, yet we never missed a meal due to your stove. It worked perfectly in all conditions of weather at sea.

I shall be glad to tell others of our experience with the stove whenever the occasion arises.

Yours very truly,

C. P. Chapman
Editor.

C. P. Chapman-S



Two-Burner Kit (Open)

Two-Burner Kit (Closed)
All equipment packed inside

Equipment shown in illustration consists of coffee pot, folding aluminum frying pan with cover, sugar and coffee containers. All the equipment is packed inside the stove, making it as compact as a suit case.

Price, complete with equipment $17.50
Price, without equipment.... 15.00

One-Burner Kit (Open)

One Burner Kit (Closed)

This model is very compact, and is ideal for use where space is at a premium, or for one person planning a hunting or a fishing trip. It takes up no more room than a camera. Has pressure gauge, pump and funnel.

Price complete $10.00

ON THE "GAR JUNIOR II"

KAMP KOOK KITS

A NECESSITY on every motor boat, cruiser or skiff. Enjoy clean, well cooked meals on your trip. Auto-Kamp-Kook-Kit is handy, light and compact. Burns motor gasoline and folds up like a suit case with all equipment packed inside.

Made in several sizes from the one burner kit at $10.00 to the six party suit case outfit at $47.50.

At your dealer's or direct by express. Write for details.

PRENTISS-WABERS STOVE CO., 37 SPRING ST., WISCONSIN RAPIDS, WISC.

AS your compass guides you Safely to port, so the WC guides you to Dependable Motor Boat Fittings. The

WC Oil Compass

is constructed on scientific principles by skillful workmen. Its action, accuracy and steadiness are guaranteed under all conditions. Built to withstand the jars of power craft, the dial is adjusted to remain steady in a sea way and responds quickly to a change in direction. Every compass carefully tested before shipping. 2, 2½, 3, 4 and 5 inch dials.
At your dealer's or write us.

Send 20c in stamps for celluloid Course Protractor. "Compass Talks and Tests" sent free. Tells how to box the compass, contains deviation tables, and other practical information for compass users.

WILCOX, CRITTENDEN & CO., Inc.
4 South Main Street
Middletown, Conn.

YOUR Motor Boat is The "TUNNEL-KING"

YOU will choose it before all others simply because of its superiority. It will take you anywhere. You can sail the broad expanse of the Great Lakes and the swiftly-moving waters of the big rivers. You can explore the mysterious back waters of the shallow creeks. Any place where there is water enough to float a log the "TUNNEL-KING" will go—swiftly and safely. The "TUNNEL-KING" is equipped with a

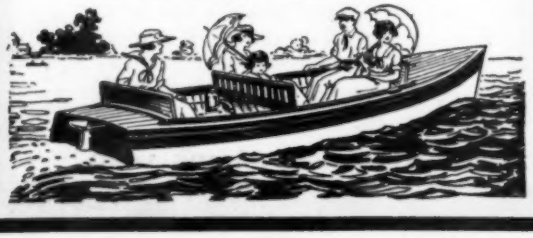
PROTECTED PROPELLER

The propeller revolves in a tunnel at the stern of the boat, and is still further protected by two projecting skegs, which deflect all floating obstructions so that they cannot foul the propeller. Then there is its famous one-cylinder, one-man-control "KINGFISHER" ENGINE—the engine that goes the longest distance on the least gasoline. Your "TUNNEL-KING" seats 6 passengers—will carry more at a pinch. It is 17 feet long, 22 inches deep, 4 ft. 4 in. beam—a handsome, seaworthy cruiser that will give you the best of service in every way.

WRITE FOR FREE BOOKLET—NOW.

THE A. R. WILLIAMS MACHINERY CO., LIMITED
Dept. M. B., 64 Front St. West, Toronto
Branch Offices: Halifax, St. John, Montreal, Hamilton, Winnipeg, Vancouver.

If It's Machinery—Write "Williams"



Lightnin, the Gas-Electric Cruiser

(*Continued from page* 68)

lar to the driving seat in an automobile. It is then suggested that she press one of the buttons convenient to her toe. Upon doing this somewhere out of sight, a slight whirring noise is heard. This was occasioned by turning the current from the 36-volt storage battery into the generator attached to one of the 4 K. W. sets, resulting in turning it over at a speed of 300 revolutions per minute. It at once starts up and operates at 110 volts which is indicated upon the voltmeter placed relatively in the same position as an instrument of an automobile. It is then suggested that she move a small lever about 3 inches long attached to a standard within convenient reach. Glancing at it the lady notices that the indication is plain that it is to be moved in one direction to go ahead and the other astern. Upon moving this in the direction indicating ahead, the little boat gathers way without jar or vibration. When her surprise is worn off somewhat, it is suggested that she press her toe upon the other button and see what happens. Upon doing this the second generating set is thrown into action and the indicator of the voltmeter moves up from 110 to 220 volts and the little boat gains headway rapidly until it is shooting along at full speed. About this time the lady realizes that the wheel on which her hands are resting operates exactly the same as an automobile with which she is perfectly familiar and within a few minutes the boat is gliding around under perfect control.

It is then suggested that it would be well to see how quickly the boat would stop and reverse its direction and it is suggested that all necessary to do this is to take hold of the small operating handle previously referred to and move in quickly from full speed ahead to full speed astern. This is done and within a few seconds the motor which has been revolving at a rate of 1200 revolutions per minute in one direction is revolving at full speed in the other, with the result that the boat moving at nine miles per hour has been brought to a stop within 60 feet or one and one-half times its own length.

The great facility with which the motor can be operated in either direction makes it possible by proper manipulation of rudder and screw to turn the boat entirely around practically within its own length.

The electrically operated small cruiser bids fair to have as many auxiliaries as an Atlantic liner or modern battleship. To begin with, there is a 36-volt storage battery of ample capacity for starting and lighting purposes, operating a bilge pump. Also an air compressor for throwing air pressure upon the water tanks to provide running water throughout the boat. Current to operate an electric fan, an iron for pressing clothes which the sailor man likes, to look well when he goes ashore. For cooking purposes there is full equipment of standard electric heating appliances of the standard 110-volt construction with which we are becoming so familiar in our home. These are operated from either one of the generating sets, while the boat is under way or while at anchor. To have your electric coffee percolator on the table in the morning, with a toaster within easy reach, and a grill to cook your chops is having the very latest in the culinary line, and electricity afloat will do all this for you and much more.

The principle of using electric drive on a small boat is not new to Mr. Donnelly. His earlier boats Dawn and New Era are both electrically equipped throughout and built with the same non-sinking arrangements as Lightnin. The peculiar arrangement of these boats is that the entire power generating equipment is carried on the boat Dawn. The New Era is provided only with a twenty horsepower electric propulsion motor and is towed so to speak ahead of the towing boat by means of power received from the power station which is astern. These boats have made extensive cruises, one of the most recent being a cruise to Florida last winter, which was accomplished by both boats without difficulty. Storage batteries are carried so that in the event of the power cable being injured the boat will not be helpless but can operate for a number of hours independent of the power supply boat.

Miss Chicago, the Speedster

(*Continued from page* 18)

of its own. Wads of cotton were placed in my ears, and over the cover-all, a life jacket was firmly fastened. I rather regretted the jacket was not of the Elizabethan ruff type worn by Commodore Clark and Mr. Smith. Eager—indeed, too eager, hands helped me into the boat. After some maneuvering of the jacket which was built for a more elongated individual than myself and considerably impeded my sitting down capabilities, I responded "All ready" to Commodore Clark's inquiry and we were off!

Then the "roaring realization!" From the moment we shot away from the barge doubt and fear vanished as spray beneath the sun and in their place came wonderment and rapture. Riding in Miss Chicago was not terrible at all. It was glorious! We rounded the buoy making the lower edge of the course

(*Continued on page* 86)

Advertising Index will be found on page 110

Evinrude Playgrounds No. 5
Lake Placid and Mirror Lakes in the Adirondack Mountains, N. Y., where more than a score of Evinrudes are in use

Keep Cool!

2 Horse Power Automatic Reverse Built-in-flywheel Magneto

WHY swelter on shore in the heat of the day when there's always a breeze on the water? Add an Evinrude to your vacation outfit and you can quickly make a clever little power-craft of any small boat you own or rent.

How much handier it is at regatta or yacht race when you have an Evinrude to supply the power! So easy to dart in and out among the larger boats that line the course. A turn of the flywheel and away you go and there's no hot, tiresome oar-work to spoil the fun.

Twenty-five miles to a gallon of "gas" or an hour's ride for a nickel. And an Evinrude costs only $10 a year, dividing its price by its life. What other outing equipment affords so much sport and costs so little?

Ask your sporting goods or hardware dealer to show you the Evinrude. Or send for catalog.

Evinrude Motor Company
464 Evinrude Building, Milwaukee, Wis.

Distributors:

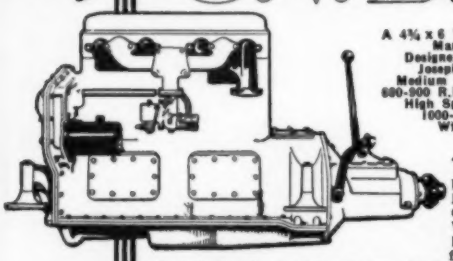
69 Cortlandt St., New York, N. Y.
440 Market St., San Francisco, Calif.
780 Commonwealth Ave., Boston, Mass.
211 Morrison St., Portland, Ore.

Service Stations:

5101 So. Main St., Los Angeles, Calif.
P. O. Box No. 881, Savannah, Georgia
1415 West 9th St., Cleveland, Ohio
229 N. State St., Chicago, Ill.
115 So. Main St., Salt Lake City, Utah
162 So. Main St., Memphis, Tennessee

EVINRUDE
DETACHABLE MOTOR FOR WATERCRAFT

Performance Satisfies



A 4¼ x 6 Valve in the Head Marine Engine
Designed and Built by Joseph Van Blerck
Medium Duty 28-40 H.P.
600-900 R.P.M. Wt. 1450 lbs.
High Speed 45-60 H.P.
1000-1450 R.P.M.
Wt. 1330 lbs.

THIS engine has been installed in Runabouts, Cruisers and Workboats ranging in length from 26 to 65 feet during the past two years. Owners report reliability, fuel economy; quiet, smooth operation, and exceptional control.

This is the engine that the Elco Works of Bayonne, N. J., selected for their standardized 33-foot Cruisette after exhaustive tests.

Let us send you complete information.

We can make immediate shipment of either model.

$1250.00
Complete Equipment
F. O. B. Akron, O.

The J. V. B. Engine Company
Joseph Van Blerck, Pres.
195 Kenmore Blvd., Akron, Ohio

New York Representative: Verrier, Eddy Co., 222 E. 42nd Street.
Boston Representative: Gray-Aldrich Co., 84 Atlantic Avenue.
San Francisco Representative: Wellman Seaver Morgan Co., 201 Rialto Bldg.
Northwestern Representative: Pacific Net and Twine Co., Seattle.
Philadelphia and Atlantic City Representative, Ventnor Boat Works, Atlantic City, N. J.

Commercial Engine Representative:
The Sexton Motor Co., 30 Church St., N.Y.C.
New Orleans Representative: Alker-Donovan Co., Inc., 510 Canal Street.

"JASCO"
SAFETY FIRST
TANK

SUPPOSE IT *IS* INSURED!

An insurance policy may cover the *cost* of your boat but it won't protect the life of its occupants. With a "Jasco" equipped boat there *simply can't* be such a thing as a leak in your gasoline tank.

"Jasco" Tanks mean *safety with a saving.*

Made of seamless drawn steel, strong and tested—they are perfect in every detail and insure lasting service and positive protection.

THERE'S A "JASCO" TANK FOR YOUR BOAT.

Send for booklet and detailed information

JANNEY, STEINMETZ & COMPANY
Main Office, Philadelphia New York Office, Hudson Terminal Bldg.

Miss Chicago, the Speedster

(*Continued from page* 84)

and headed upstream. Commodore Clark opened wider the throttle and the magnificent craft leaped forward, giving us that "soaring sensation." Surely we were actually soaring over the water!

The giant motor poured its song of power into our ears, the green shores raced by as if strips of film turned by the hand of a speed-mad movie operator. The wind beat at our breasts, tore at our hair and seemed trying to snatch the breath from our bodies. Then we slowed a bit for the turn around the outer one of the two upper buoys, our bodies inclining inward as the boat swung gracefully around.

Reformers should zealously support the experience of topping the waves in "Miss Chicago," as an uplift movement. The first uplift came just a few lengths out from the barge and then they continued at regular intervals until Commodore Clark shut off the power preparatory to nosing up to the barge again. The first few caught me unprepared and taught me anew the truth of that ancient axiom, "What goes up must come down." "Then I got my right foot braced hard against a bit of the flooring and with my left arm around the back of the seat and my right hand clutching the seat at my side. I caught the trick of rising to the bumps, much as rising to the trot of a horse. It may not be sportsmanlike to mix sports thus, but it proved a successful bump-saver. The only disagreeable sensation I had was that the force of the air against my face made it difficult, and at times almost impossible to keep my eyes open, and I was afraid I might miss something.

We rounded the other upper buoy and started on the home stretch down the lake. Then it was that Commodore Clark lived up to his promise to me and "let her out." Talking is impossible, but Bernard Smith nudged me in the side and pointed to the tachometer at our feet. I sensed he was trying to show me how fast we were going. I could not decipher the dial, but my feelings left no doubt we were hitting it up. Later I learned that the instrument had indicated a speed of just under 70 miles per hour.

As we tore along over the water, the emotion of "extreme exhilaration," broadened into "absolute approbation" and I became a speed boat enthusiast for life and the speedier the better. Still we pressed onward at top speed. The boat seemed to tremble and thrill as some gigantic monster might if expending its utmost energies in mad flight. The water hissed angrily, as the bow cut through it and attempted to retaliate by reaching into the back of the boat and slapping viciously at our backs. We went faster—faster—faster! The roar of the engine mingled with the shriek of the wind into a hideous medley of sound. The common every day world forgetting, if not by it forgot, we flew forward into another world, a new world, just emerging from chaos, where we were one with the elements. Faster—and yet faster— and then.....

The terrible happened!

We reached the end of the course! My ride in Miss Chicago was over. Commodore Clark shut off the power and Miss Chicago slid gently and easily up to the barge. "How was it?" Commodore Clark asked, his voice sounding faint and funny in my ears after the roar of the exhaust. "Great," I answered and then greedily, "When can I go again?"

Up on the barge again my doffed cover-all disclosed the fact that I had had considerable of a soaking; my hair, waveless, though wet, was wildly disordered; my shoes were sopping and grease spattered; and a tentative rub at my cheeks revealed numerous freckles of grease. But what are ruined coiffures, soakings and grease on feet or face, in a world where there is such joy and such "cause for congratulation" as riding in "Miss Chicago"?

Yard and Shop

(*Continued from page* 40)

Winchester Has New Manager

Norman E. Horn, Superintendent of Sales Service, is now the advertising manager of the Winchester Repeating Arms Co., as well, succeeding W. I. Shugg, who has resigned. Under Mr. Horn the Sales Service and Advertising Departments will be combined. The new advertising manager joined the Winchester forces in 1919 and soon after his connection organized the Sales Service Department and has been in charge of it since.

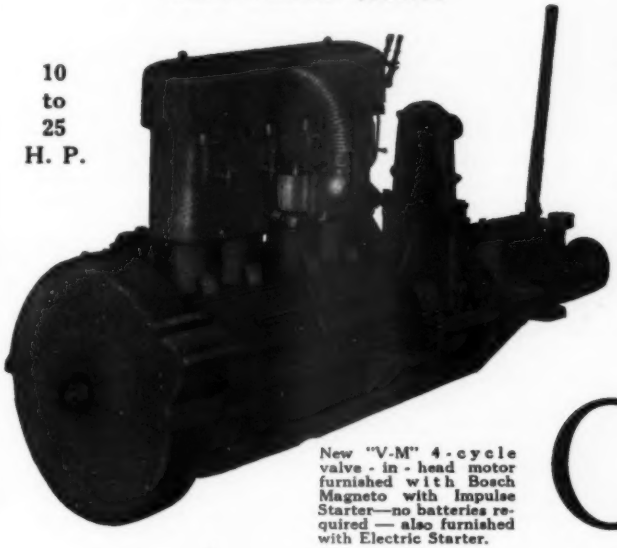
Advertising Index will be found on page 110

Gray Marine Motors for 1921

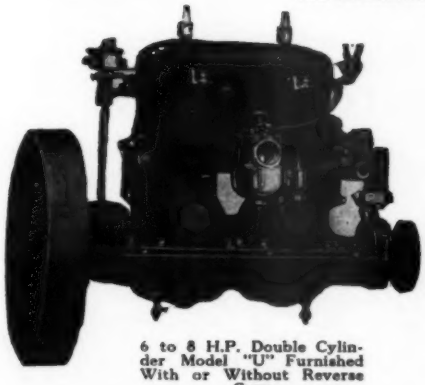
"the engine with the Big crank shaft"

NEW PRICE $550.00

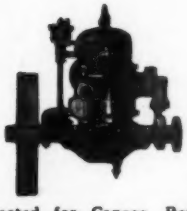
10 to 25 H. P.



New "V-M" 4-cycle valve-in-head motor furnished with Bosch Magneto with Impulse Starter—no batteries required — also furnished with Electric Starter.



6 to 8 H.P. Double Cylinder Model "U" Furnished With or Without Reverse Gear



Selected for Canoes, Row Boats and Small Launches. 3-8 H.P. 2-cycle Gray Motor. Standard the World Over.

Your DEPENDABLE Power Plant for Work Boat, Cruiser or Runabout.

The New York State Barge Canal tried out 4 model "V-M" Gray Motors in 1919 with other leading makes. Last year they put in commission 35 more Grays.

OVERHEAD valve marine-motors are acknowledged to be of greater efficiency and power than other types and in the Gray the ultimate of valve-in-head marine motor perfection has been attained.

The Gray is designed to operate on either gasoline or kerosene, it cannot backfire, it burns the fuel keenly with practically no carbon, soot, smoke or odor and lubrication troubles are unheard of in the Gray.

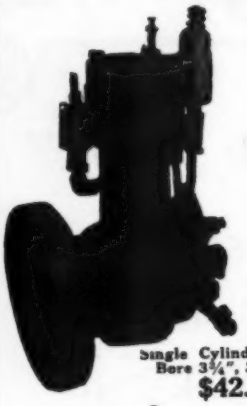
Our Hot-Spot Cylinder Head gasifies thoroughly the fuel used and renders it completely combustible.

Gray Two-Cycle Motors are built in models from 3 to 8 h. p. Gray Four-Cycle Motors are built in three sizes, 10 to 50 h. p. Write for FREE literature.

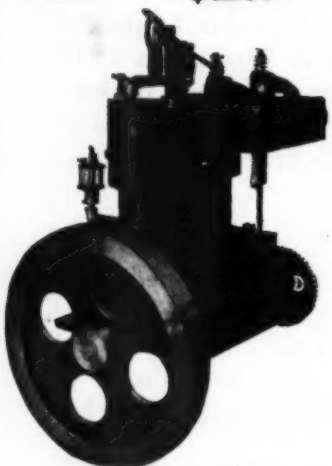
Leading Boat Builders for upwards of 15 years have specified Gray Engines as standard equipment for their boats.

GRAY MOTOR COMPANY 2106 MACK AVE., **Detroit, Mich.**

DUNN MOTORS



Single Cylinder, 2 H.P.
Bore 3¼", Stroke 4"
$42.50



Two Cylinder, 4 H.P.
Bore 3¼", Stroke 4"
$75.00

Two Cylinder, 8 H.P.
Bore 4¼", Stroke 5"
$125.00

The Lowest Priced Four Cycle Motors Made

Kerosene or Gasoline Fuel

IF you want a genuine four cycle motor at the lowest possible cost, don't fail to investigate the Dunn Motors. They give you the undoubted advantages of four cycle design at a cost about the same or less than ordinary two cycle motors.

The low cost of Dunn Motors is due to their simplicity of design and construction. Dunn prices speak for themselves. They are just enough to cover essential materials and workmanship. There are just so many necessary working parts in an engine, and anything beyond this means unnecessary expense for the buyer.

Hundreds of Dunn Motors are in use and it is surprising how many testimonial letters we receive from satisfied users. Many a Dunn owner says he would not change engines for others of higher price.

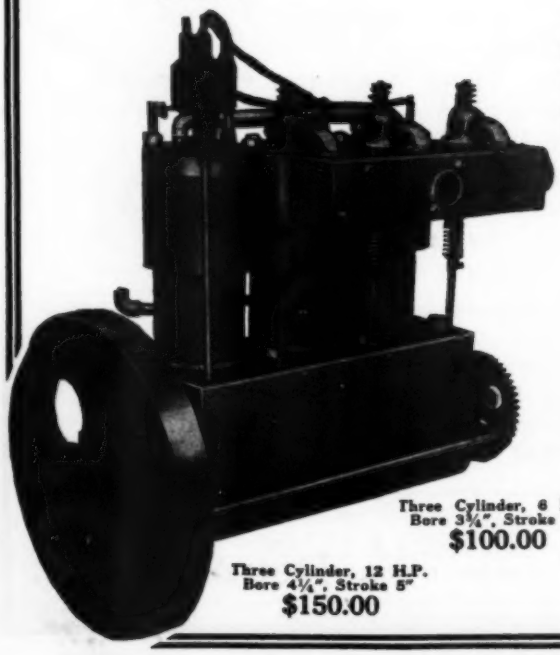
When you buy a Dunn, you don't get a fancy engine but you get one that's worth the money. We have aimed to supply a satisfactory motor for the man who doesn't care for fancy finish but wants the most power and service for his money.

The prices quoted include complete equipment, propeller, shaft, couplings, coil, spark plugs, mixing valves and oil cups. Foreign buyers should add 10% to cover cost of boxing for export and delivery F.O.B. steamer at New York City.

Write today for catalog

DUNN MOTOR WORKS

OGDENSBURG N. Y., U. S. A.

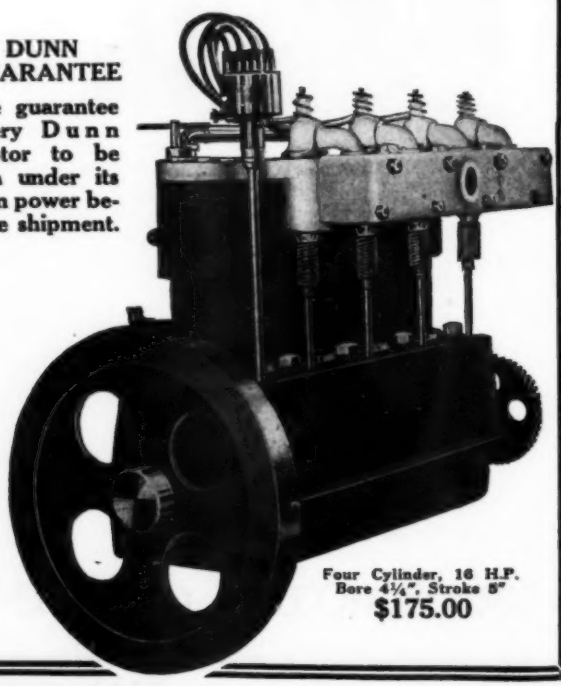


Three Cylinder, 6 H.P.
Bore 3¼", Stroke 4"
$100.00

Three Cylinder, 12 H.P.
Bore 4¼", Stroke 5"
$150.00

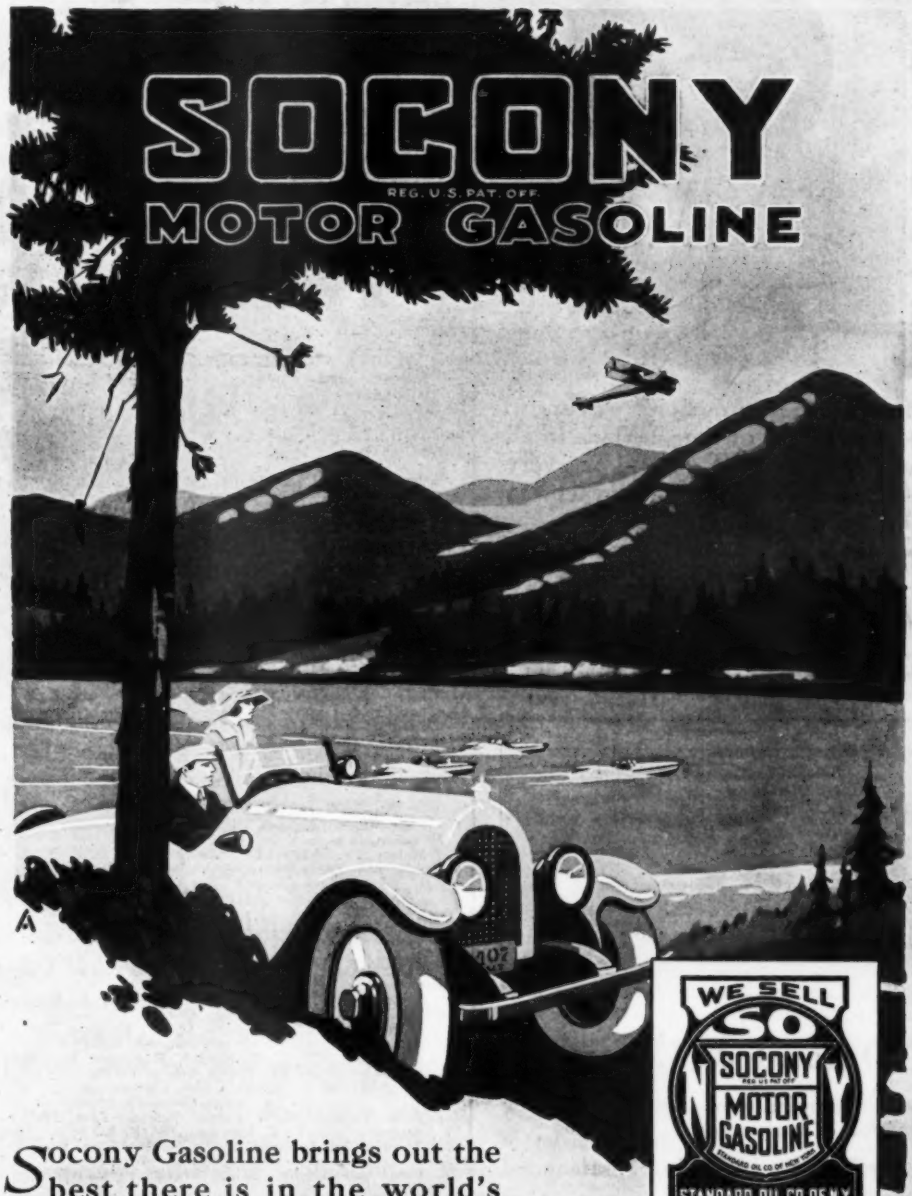
DUNN GUARANTEE

We guarantee every Dunn Motor to be run under its own power before shipment.



Four Cylinder, 16 H.P.
Bore 4¼", Stroke 5"
$175.00

Advertising Index will be found on page 110



WE SELL SO
SOCONY
MOTOR GASOLINE
STANDARD OIL CO. OF N.Y.

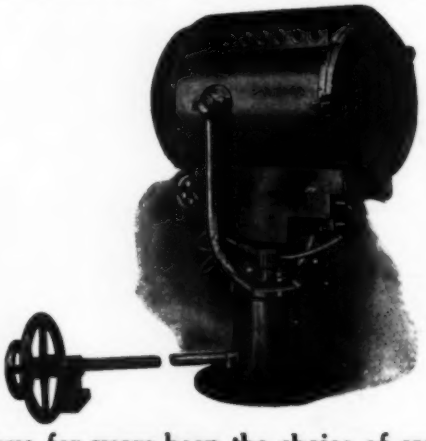
The sign of a reliable dealer and the world's best Gasoline

Socony Gasoline brings out the best there is in the world's finest airplane, marine and automobile motors. Clean, dependable, pedigreed! It is truly the aristocrat of motor fuels.

STANDARD OIL CO. OF NEW YORK

"Every Gallon the Same"

CARLISLE & FINCH ELECTRIC SEARCHLIGHTS



have for years been the choice of careful motor boat and ship owners. Made in all diameters, from 7" to 60". Used on every size craft from motor boat and yacht to battleship and ocean liner.

The Carlisle & Finch catalog of searchlights will be mailed to any boat owner, builder and marine architect on request

THE CARLISLE & FINCH COMPANY
261 East Clifton Ave. Cincinnati, Ohio

Huff, Daland & Company

announce the completion of their facilities for the production of high grade

Motor Boats and Flying Boats

Mr. Joseph Leyare, well known among boat owners as the proprietor of the former Leyare Boat Works of Ogdensburg, has been retained as designer and superintendent of the motor boat department.

The personnel of this organization combines experienced administrative officers and boat builders of unusual skill.

Let us figure on your 1921 boat.

HUFF, DALAND & COMPANY, Incorporated
OGDENSBURG, NEW YORK

Motor Boats Flying Boats Airplanes

(*Continued from page 74*)

Runabout Race—5 *Miles*

First—Panhard, H. M. Hammer, St. Louis, Mo. Time—First lap, 5:3; course, 10:34; average speed, 28.2 miles per hour.
Second—Breeze By, William O'Neill, Quincy. Time—First lap, 5:50; course, 11:47.
Third—O. D. C., O. D. Collis, Clinton, Ia. Time—First lap, 6:50; course, 13:52.

Class 320—5 *Miles*

First—Ethel IX, Charles P. Hanley, Muscatine, Ia.
Second—C. M. C., C. D. Collis, Clinton, Ia.
Third—Margaret III, L. E. Selby, Pekin, Ill.

Webb Trophy Race—25 *Miles*

First—Miss Chicago, Sheldon Clarke, Chicago. Time—First lap, 2:23 2-5; second lap, 5:06 1-5; third lap, 7:46 3-5; fourth lap, 10:26 1-5; fifth lap, 13:3 2-5; sixth lap, 15:45 3-5; seventh lap, 18:25; eighth lap, 21:03; ninth lap, 23:45; course, 26:22.

Second Day Results

Runabouts (Final Heat)—5 *Miles*

First—Panhard, H. M. Hammer, St. Louis, Mo. Time—First lap, 5:08; course, 10:26; 28.8 miles per hour.
Second—Breeze By, Walter O'Neill, Quincy, Ill. Time—First lap, 5:54; course, 12:03.
Third—O. D. C., O. D. Collis, Clinton, Ia. Time—First lap, 7; course, 14:09.

Class 104 (*Final Heat*)—5 *Miles*

First—Buddy, Phil Becker, Jr., Peoria. Time—First lap, 6:39 3-5; course, 13:48 3-5; miles per hour, 21.75.
At-a-Boy, Phil M. Lown, Waterloo, limped across the finish line for second place, steering with an oar and feeding his engine by hand. His time for the course was 22:25 minutes. Ugly Duckling, Jr., Harry Godley, Davenport, Ia., did not finish.

1300 *Class* (*First Heat*)—20 *Miles*

First—Black Diamond, Frank Webber and Chas. Barrick, Peoria. Time, 32:10; speed, 37.3 miles per hour.
Second—Miss Virginia, U. L. Ellis, Peoria.
Third—Docs., L. R. Van Sant and W. B. Whipple, Peoria.
Mr. Quincy, Famuss. Imp. III, failed to finish.

478 *Class* (*First Heat*)—10 *Miles*

First—Cadillac IV, Rollen Travis, Peoria, Ill. Time, course, 17:46 2-5 miles per hour.
Second—C. M. C., O. D. Collis, Clinton, Ia. Time, course, 17:47.
Third—Miss Quincy, C. E. Padgett, Quincy, Ill. Time, course, 19:46.

Cruiser—10 *Miles*

First—Alaned II, A. G. Schultz, Beardstown, Ill. Time, course, 22. Miles per hour, 14.
Second—Margaret III, Harry Good, Moline, Ill. Time, course, 29:45.

215 *Class* (*Final*)—5 *Miles*

First—Miss Quincy IV, C. E. Padgett, Quincy. Time, course, 9:39 1-5; 31.1 miles per hour.
Second—Margaret III, L. E. Selby, Pekin, Ill. Time, course, 9:40.
Third—Essex.
Muggs II, Good and Peterson, Moline, Ill.; Miss Peoria, R. H. Daniels, Peoria, finished but did not place.

President's Trophy (*First Heat*)—10 *Miles*

First—Meteor IV, Walter B. Wilde, Peoria. Time, course, 6:20 3-5; 47¼ miles per hour.
Second—Black Diamond, Chas. Barrick; Frank Webber, Peoria. Time, course, 7:43.
Third—Miss Virginia, M. R. Ellis, Peoria. Time, course, 8:12.

Third Day Results

President's Trophy—10 *Miles*

First—Black Diamond, Chas. Barrick and Frank Webber. Time, 15:23; 39 miles per hour.
Meteor IV, Walter B. Wilde, Peoria; B. & B., J. P. Bartholomew, Peoria, developed engine trouble and did not finish.

151 *Class* (*Final*)—5 *Miles*

First—Miss Margaret III, L. E. Selby, Pekin. Time, 9:31 3-5; miles per hour, 31.
Second—Miss Quincy IV, C. E. Padgett, Quincy, Ill. Time, 9:31 4-5.
Third—Miss Peoria, R. H. Daniels, Peoria. Time, 9:53 2-5.

705 *Class* (*Final*)—10 *Miles*

First—Meteor III, Walter B. Wilde, Peoria. Time, 13:57; miles per hour, 43.1.
Second—Docs., L. R. Van Sant and W. B. Whipple, Peoria. Time, 14:23 2-5.
Third—Famuss, Dr. W. W. Cutter, Peoria. Time, 14:25.

320 *Class*—5 *Miles*

First—Ethel IX, C. P. Hanley, Muscatine, Ia. Time, 7:05.
Second—Cadillac IV, Rollen Travis, Peoria.
Third—C. M. C., O. D. Collis, Clinton, Ia.

1300 *Class*—20 *Miles*

First—Famuss, W. W. Cutter, Peoria. Time, 28:35.
Second—Docs., L. R. Van Sant, W. B. Whipple. Time, 28:55.
Third—Black Diamond, Frank Webber, Chas. Barrick. Time, 30:22 3-5.

478 *Class*—10 *Miles*

First—Cadillac IV, Rollen Travis, Peoria. Time, 16:51; miles per hour, 35.6.
Second—Ethel IX, C. P. Hanley, Muscatine, Ia. Time, 16:53.
Third—C. M. C., O. D. Collis, Clinton, Ia. Time, 17:12 2-5.

Webb Trophy—15 *Miles*

First—Miss Chicago, Sheldon Clarke, Chicago, Ill. Time, 19:56 2-5; miles per hour, 45.13.
Second—Meteor IV, Walter B. Wilde, Peoria. Time, 20:00 4-5.
Third—Black Diamond, Chas. Barrick, Frank Webber, Peoria. Time, 25:07 2-5.

Race Summaries

Class 1300

1. Black Diamond, Charles Barrick and Frank Webber, Peoria, $241.
2. Docs, L. R. Van Sant and W. B. Whipple, Peoria, $120.
3. Famuss, Dr. W. W. Cutter, Peoria, $80.

President's Trophy Race

1. Meteor IV, W. B. Wilde, Peoria, and Black Diamond, Charles Barrick and Frank Webber, Peoria; tied. Two boats to run off tie within ten days.
3. Miss Virginia, M. R. Ellis, Peoria, and B. B. II, J. B. Bartholomew, Jr., Peoria; tied; no prize.

Runabout Race

1. Panhard, W. H. Hammer, St. Louis, Mo., $61.
2. BreezeBy, William O'Neill, Quincy, Ill., $40.
3. O. D. C., O. D. Collis, Clinton, Ia., $20.

Advertising Index will be found on page 110

Hacker-Craft

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This double cockpit 28-foot wonder boat is the latest work of John L. Hacker, who claims it his greatest achievement in his experience as a naval architect. Five passengers can ride in perfect comfort, free from all noise, dirt, and spray, and the sensation is such that cannot be had in any other type of boat.

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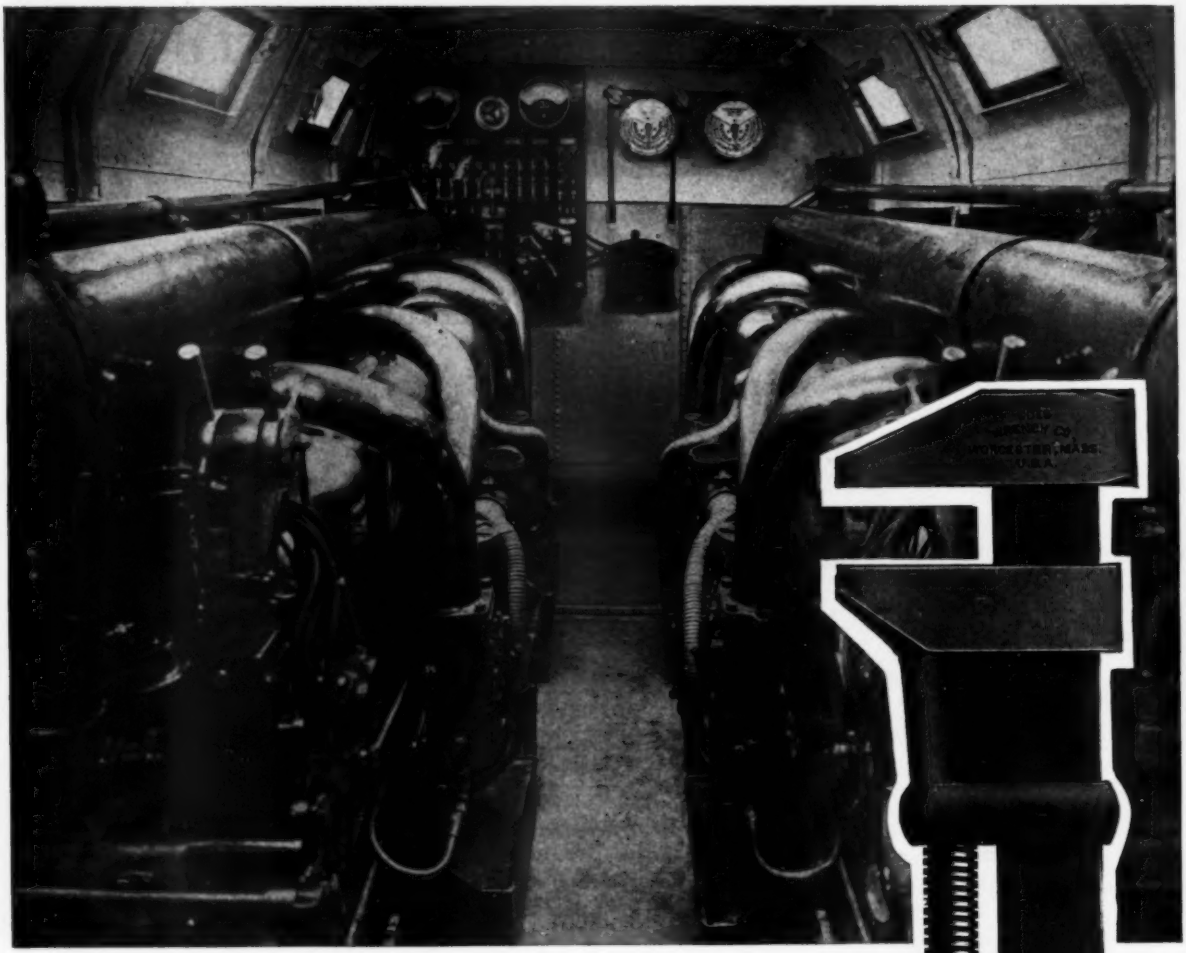

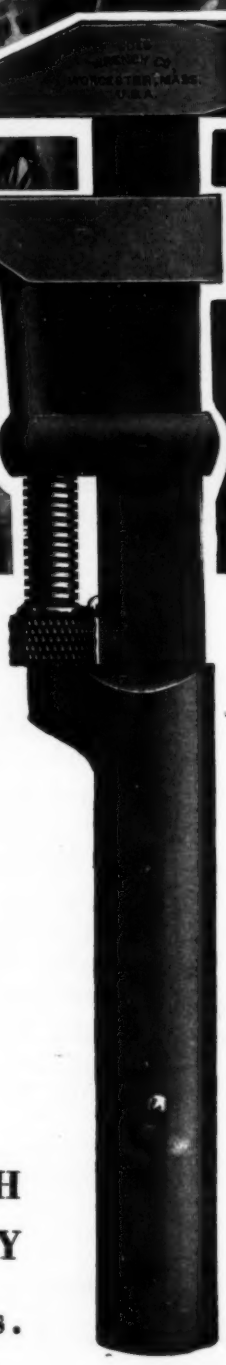

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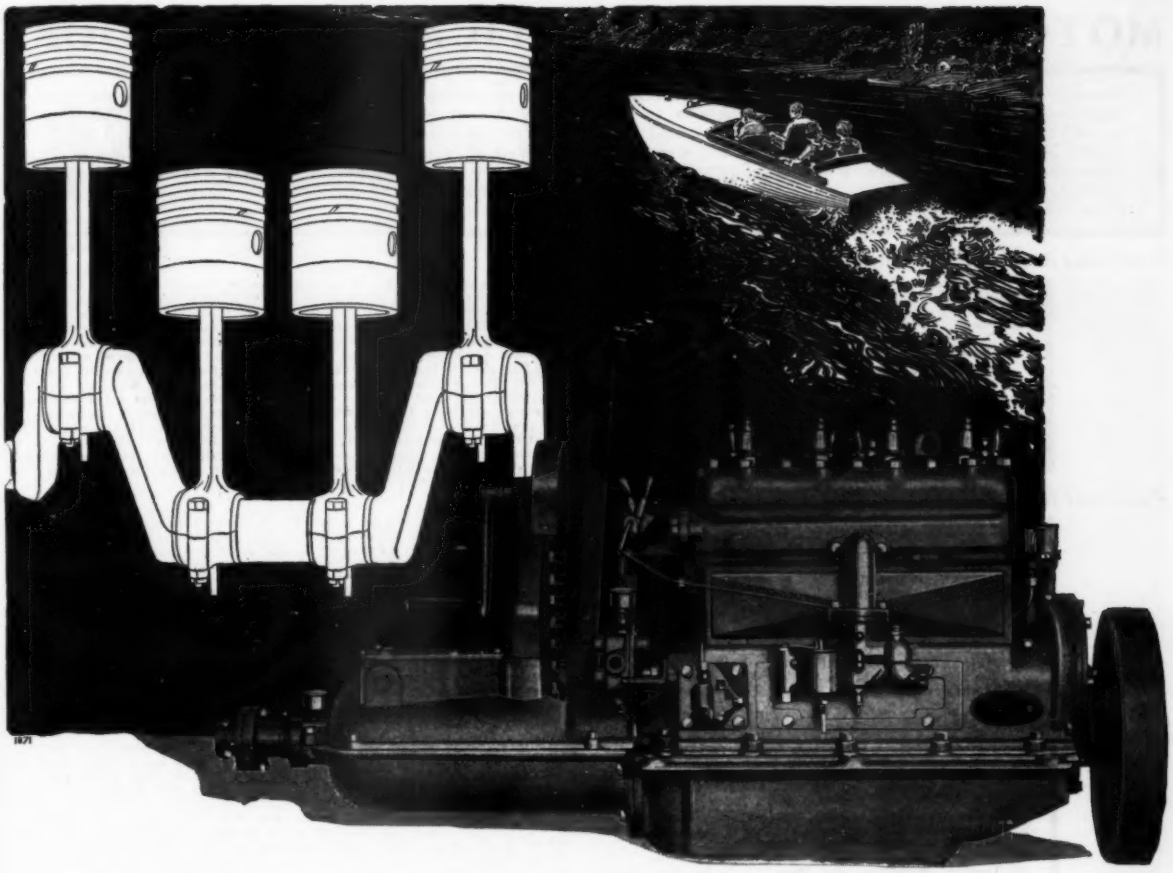

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Practical Motor Boats and Their Equipment

Volume 1.—The first volume tells you what the ideal boat for various kinds of service should be and what to look for in buying a boat. Many suggestions about decoration and hints on all kinds of equipment. All about steering gears, wireless outfits, electrical attachments, etc. Glance over the list of contents appended herewith: Hulls, Ballast and Seaworthiness; Round Bottom *vs.* Sharp Bilge; What are the Advantages of Flare? Raised Deck *vs.* Trunk Cabin; Best Proportion of Beam to Length; Selecting a New Design; The Advantages of Bilge Keels; Open or Solid Deadwood? What Makes a Hull Seaworthy? The $1,000 Cruiser; Buying a Second-Hand Boat; Types of Bows and Sterns; Exterior Arrangement of Cruisers; The Best Cabin Arrangement; Finishing Up the Cabin; Changes in Interior Arrangement; Interior Arrangement for Open Boat; Propeller-Rudder Arrangements; Best Position for the Rudder; Advantages of the Outboard Rudder; Different Steering Positions; Steering Equipments for Motor Boats; Steering Gear for the Cruiser; The Steering Gear for a Runabout; Steering the Boat from the Side; The Electrical Equipment; Making and Wiring a Switchboard; Electric Lighting on a Motor Boat; The Inexpensive Lighting Outfit; Wiring the Small Cruiser; The Storage Battery; The Dynamo Cut-Out; Wireless for a Small Cruiser; Tender for a Thirty-foot Cruiser; Building a Folding Dinghy; Installing the Boat Boom; What is the Best Galley Arrangement; Ventilating the Galley; The Galley Stove and Its Installation; Making a Fireless Cooker; A Portable Cook Box; Running Water for the Cruiser; How to Build a Portable Table; A Table for the Open Boat.

Practical Motor Boat Building

Volume 2.—As its title implies, this volume takes up the building of your own boat. It also covers the construction of the necessary fittings such as awning, windshield, etc. Every boatman sometime or other builds a boat, and a book of this kind will save much time and prevent many mistakes. List of contents: Types of Motor Boat Fastenings; Boat Building Woods; Laying Down a Boat's Lines; Converting a Trunk-Cabin Cruiser; A Steam Box for Amateur Builders; Joiner Between Stem and Keel; Fastening the Frames and Floors; Boring the Forgotten Limbers; Fitting the Garboard Plank; Boring the Shafting; Fitting the Stuffing Box; The Stern Bearings for a Cruiser; A Water-Tight Companionway; How to Canvas a Deck; Hinged Water-Tight Hatches; Making a Water-Tight Hatch; The Coaming of an Open Boat; Fitting a Swinging Port Light; Making a Self-Bailing Cockpit; A Water-Tight Window Sash; Making a Water-Tight Skylight; How to Build an Engine Housing; How to Make an Engine Cover; Building a Tool Locker; Constructing an Extension Transom; How to Make a Pipe Berth; An Ice-Box for a Cruiser; Installing a Toilet; How to Rig a Signal Mast; How to Make a Spray Hood; Fitting a Folding Windshield; An Awning for the Open Boat; A Cover for the Open Cockpit; Screens for the Side Light; A Support for the After Light; A Seat for the Man at the Wheel; Removable Davits for the Cruiser; The Boarding Steps; A Bow Rudder for Your Hydro; The Motor-Driven Club Tender.

Practical Things Motor Boatmen Should Know

Volume 3.—Navigation is one of the important subjects covered in volume three of the series. Tells you how to steer, how to increase the factor of safety, and a host of other things relative to the proper running of your boat. The chart and compass are both fully explained in a clear and comprehensive manner. The list of contents will tell you more about it; Advice for the Beginner; Lessons Learned from Experience; Good Things to Know; Increasing the Factor of Safety; Which Way Should the Boat Steer? Why a Boat Steers Badly; Why do Boats Squat? Figuring the Boat's Speed; Ballasting the Cruiser; Getting Off Bottom; To Ride Out a Storm in a Motor Boat; The Why and How of Storm Oil; Preventing Fire; Handling Ground Tackle; Government Charts; Stowing the Anchor on a Cruiser; Diminishing Deviation; Preventing Electrolysis; Stowing and Using Charts; How to Make a Chart Case; Keeping a Motor Boat's Log; How to Make a Sextant; Tides and Tidal Waters; Taking Her Through the Canals; The Best All Round Dinghy; Towing the Tender; Handling the Dory in a Seaway; Getting the Tender Aboard; Planning for a Cruise; Equipping for a Cruise; Equipment for Offshore Cruising; Novel Events for Regatta Day; Handicapping; The Object of a Handicap Rule; Laying Off a Race Course; Measuring the Length of a Race Course; Preparing a Boat's Bottom for a Race; How to Build a Turning Buoy; Starting Boats in a Race; Stowing the Signal Flags; Fitting a Gun Mount; A Fish Box for Your Cruiser; A Cabin Wall Rack.

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Volume 4.—All about the marine motor; what it should and should not be. Tells why the automobile engine is unsuccessful in marine work. The best location for your engine, the ideal engine bed, the fuel tank, exhaust and countless other suggestions that will enable you to get the best results from your power plant. List of contents: Purchasing a Marine Motor; How Many Cylinders? Power per Cylinder; High Speed *vs.* Heavy Duty; Long Stroke *vs.* Short Stroke; Correct Motor Design; Changes in One's Power Plant; The Things that Cause Vibration; The Automobile Engine for a Boat; The Best Position for the Motor; The Ideal Engine Compartment; Placing the Engine in the Hull; Installing a Motor in a Canoe; Installing Power in a Yawl; Converting a "Banker" to Power Engine Installation in a Hydroplane; Putting Power in the Rowboat; Limits of Shaft Inclination; Constructing the Engine Bed; Getting the Motor Aboard; Lining Up the Propeller Shaft; The Best Exhaust; Mufflers *vs.* Under-Water Exhausts; Installing an Under-Water Exhaust; Primary Batteries for Ignition; Keeping the Ignition System Dry; Installing a High-Tension Magneto; From Make and Break to Jump Spark; Installing the Gasoline Tanks; Taking Care of Extra Gasoline; Spark and Throttle Controls; Constructing a Rear Starter; Propeller for Engine and Hull; Installing a Universal Joint; Gearing Motor to Propeller Shaft; The Automobile Throttle; Harnessing the Main Engine; Rebabbitting a Worn Bearing; Should Fuel Line be Inside or Outside.

Practical Motor Operation and Maintenance

Volume 5.—One of the most valuable books of the entire set. Your motor's ills and how to cure them. This volume tells you how to adjust your carburetor, how to fit piston rings, how to remedy poor compression and a number of other things that will enable you to doctor your own motor. List of contents: Locating the Motor's Troubles; The Overheated Motor; Starting in Cold Weather; Overhauling a Marine Motor; How to Save Fuel; The Fuel Situation; Using Low Grade Fuel; How to Run on Kerosene; Supplying the Fuel to the Carburetor; Adjusting the Carburetor; Cleaning the Fuel Tanks; Cleaning the Gasoline Line; Stopping Up the Leak in the Tank; A Home-Made Gasoline Gauge; Carrying an Extra Supply of Oil; Mixing the Fuel and Lubricant; Remedying Leaky Compression; Killing the Carbon Jinx; Tool and Spare Parts to Carry; Removing and Replacing Piston Rings; Repairing a Leaky Cylinder; Grinding a Motor's Valves; Setting the Valves; Timing the Ignition System; Cleaning the Water Jacket; Making and Fitting a Gasket; Patching Up a Bearing; Straightening the Sprung Shaft; Truing a Bent Propeller; Removing the Flywheel; Separating Couplings and Pipe Fittings; Changing the Shaft Hole Location; Utilizing the Exhaust; Disposing of the Bilge Water; Heating a Small Cruiser's Cabin; Operating the Outboard Motor; The Clean and Quiet Boat; Charging a Storage Battery; When the Motor Stops Unexpectedly; Making a Unit Power Plant.

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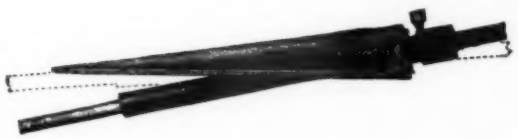

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East Still Leads in Cruiser Races

(*Continued from page 37*)

shoulders of the regatta committee. The data established by the performance of the boat was studied by the experts of the committee and the time allowance for the return race determined. Boats were started back in the order of their handicap times, the slowest boat leaving first, and the fastest one last so that, theoretically, they all were due to finish the return trip at the same instant. Twenty-five boats had entered. Unavoidable accidents had reduced this number to eighteen which actually started in the race. There were fourteen cruisers and four open boats which completed the round trip of 100 statute miles to Newburgh and return.

The tidal conditions on the day of the race were such that a start at three o'clock would have been the best to secure a quick run up the stream. This would have brought the boats to Newburgh too late in the evening to take part in the elaborate entertainment planned for them by the Newburgh boys. The start was accordingly made an hour earlier in order to secure more time at Newburgh. The weather conditions were ideal and all the boats completed the run in good time. The first one to reach Newburgh being the runabout Don Q, Capt. E. Leahy, who made the up-trip in four hours and forty-five minutes. The cruiser Thetis, Capt. T. J. Morrison, was the next to reach Newburgh in five hours and nineteen minutes. The committee at Newburgh then had to work fast for the boats came in a few minutes apart for the next hour or more and were greeted by an ever-increasing whistle chorus as they finished.

The officers and members of the Newburgh Bay Boat Club were prompt in assigning the visitors to suitable anchorage and all were invited ashore to partake of their hospitality. A dance had been arranged and during the course of the entertainment which followed Commodore Scofield presented to the New York Motor Boat Club a silk pennant of the Newburg Bay Boat Club to act as a memento of the occasion. This was accepted on behalf of the visitors by Commodore Jenkins who took advantage of the occasion to thank the hosts for their cordial entertainment and welcome which they had extended to the visitors.

The regatta committee in the meanwhile had been working on the time allowances which were determined for all boats after the same plan. The time in minutes consumed by each boat on the trip up the river was tabulated. Since the tidal conditions for the return trip were to be much more favorable the return times were reduced by twenty per cent. in each case. The handicaps were then allotted so that the boats were all due to finish in New York at five p. m.

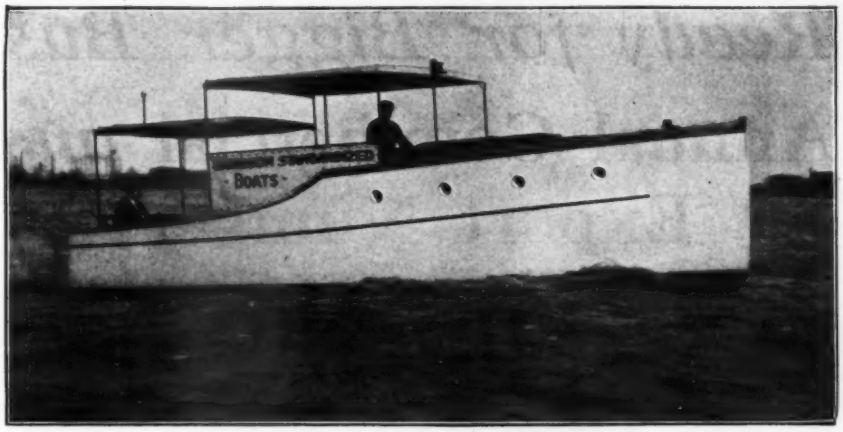
They were started back, beginning at eleven thirty a. m. and at close intervals each succeeding boat was sent on its way. The last one to leave in the cruiser division was Thetis which left at twelve thirty-one. The slowest boat by this time was seven or eight miles down the river and the skipper of Thetis had his work well cut out in order to overtake them all. As it developed the tidal conditions at the beginning of the return trip were adverse and slowed the boats down slightly. The last few boats to start back did not encounter this tide in its full strength and possibly gained a few minutes by reason of this. All boats, however, had the full advantage of the strong ebb tide for the greater part of the return journey and all finished quite closely together, in fact the first nine boats to reach the finish line were reported within twenty minutes. The percentage reduction which the committee had made was almost exactly correct as very few of the boats consumed more than the computed time for the return journey. Thetis, the fastest cruiser in the race, overtook one by one all of the other competitors. Margaret, Capt. Craig's fast cruiser, had a little difficulty shortly after starting back and was overtaken much sooner than would otherwise have been the case. The bulk of the other contestants were overtaken between ten and fifteen miles from the finish line. Kodak, the winner of class B in the Block Island race the week before, had established a long lead on the remainder of the fleet. For hours she was visible at the head of the procession and it was very uncertain whether Thetis had speed enough to overtake her. It was a long stern chase and Kodak was only passed a mile or two from the finish line. The difference in time between Thetis and Kodak was only one and a half minutes and these two boats were declared the winners of the first and second prizes, with Fleetwood, Capt. P. J. Stoltz, following closely behind in third place.

In the open boat class Don Q finished first a few seconds before Thetis. The other open boats had difficulties and the nearest contender did not finish until forty minutes later.

The cordial spirit established among the motor boatmen of New York and Newburgh by this contest has done more to promote the good fellowship and motor boating spirit than anything which has taken place for many years. It is the beginning of a return to the old days when everybody on the river knew everybody else. It is proposed to arranged a joint meeting between the New York and Newburgh yachtsmen.

Advertising Index will be found on page 110

A KERMATH EQUIPPED BOAT ALWAYS RUNS



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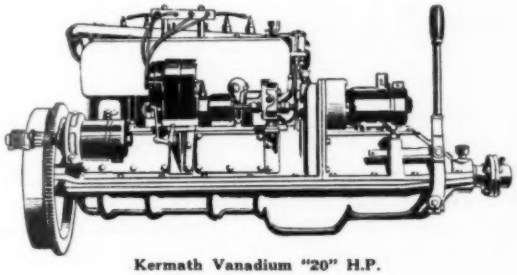
Honesty in construction of all Kermaths is what has won for them the right to be selected as standard engine equipment by boat builders.

And remember that over 70% of these boat builders are now using Kermaths as regular equipment.

If you want a marine engine that will give service, steady dependable service, do not fail to look up the local Kermath dealer.

He can tell you all about different installation methods, what an engine should do, and where to get a boat that will suit your needs.



Kermath Vanadium "20" H.P.

This Kermath 20 H.P. model is typical of the whole Kermath line. It shows the mechanical fineness and precision which the Kermath people have developed in the manufacture of marine engines. Just note the neat, compact lines and clean-cut design. Kermath engines are built in from 4 to 40 H.P. models. There is a size to suit you. Write for our Kermath booklet, address dept. D.

KERMATH MANUFACTURING COMPANY
5880 Commonwealth Ave., Detroit, Michigan.

KERMATH

"America's Standard Four-Cycle Engine"

Get Ready for Bigger Business

Annual Commercial *and* Export Number

MOTOR BOATING

Regular September Issue

If your product is used on commercial boats—
If you want more commercial boat business—
If your product is sold for export—
If you want more export business—
If you want to cover the domestic marine trade—
If you want to cover the foreign marine trade—
If you want to reach export buyers—

You should use large space in September

MoToR BoatinG

BIG business leaders are predicting a slow but steady revival of trade which will eventually become the greatest and soundest period of prosperity this country has ever known. Good business can be expected when the movements now under way are completed, for example the reduction of prices and labor costs, the improvement of foreign exchange, the settlement of war reparations, the inevitable readjustment of world conditions which must follow a great war.

Motor boats are destined to become greater factors in the field of commercial transportation and export trade. This industry will prosper in the degree that it keeps up with other American industries in the revival of good business.

September MoToR BOATING will feature the commercial and export sides of the marine industry. In addition to all of its regular editorial features, extra attention will be given to these two important fields. Readers are given extra value through the added editorial features. Advertisers are given extra value through extra circulation.

A full size copy of September MoToR BOATING will be mailed to every boat builder, dealer and engine manufacturer, and to all American Business Consuls. In addition to this we will send a special reprint containing only full page advertisements to every Commercial boat owner in America, to hundreds of exporters, foreign manufacturers, dealers and owners. Send us a list of your own foreign agents—we will send this without expense to you or to them.

Decide now what space you will use, and start preparation of your copy. Or ask our Service Department to help you — no charge. Final advertising forms close August tenth.

MoToR BoatinG, 119 West 40th Street, New York, N. Y.

Advertising Index will be found on page 110

A Below Freezing Temperature Is Automatically Maintained by the Clothel

The Clothel Electrical Refrigerating Machine for the yacht, motor boat or home cools without ice—automatically and continuously regardless of outside temperature.

It provides a dry cold in which meat, fruit and dairy products are kept sweet and fresh for days.

It is safe. It is economical. It is attractively designed, durably built and has ample food storage space. It supplies daily sufficient ice for all table and household uses.

The Clothel Electrical Refrigerator is sold as a complete unit—box and mechanism all in one. Or if desired the system only may be obtained and fitted to any standard refrigerator. Larger installations will be constructed to order.

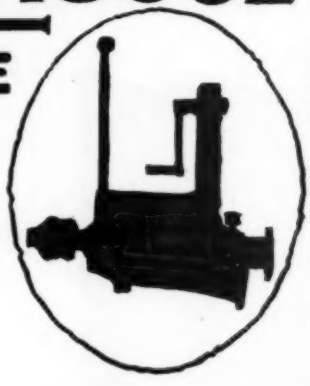
Write for Clothel Booklet which tells in detail the interesting story of electrical refrigeration, no obligation.

The Clothel Refrigerating Company
61 Broadway, New York

N. H. Rockwell, New Orleans

The Canadian Clothel Refrigerating Co., Ltd.
17 St. John St., Montreal

SYRACUSE
REVERSE GEAR



NEW PRICES
July 1st, 1921
20%
LOWER

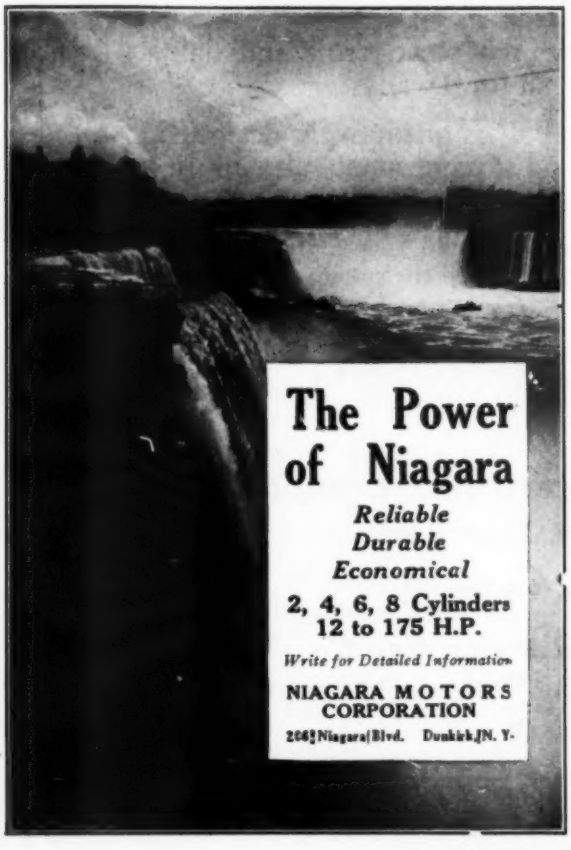
Don't postpone buying your new reverse gear any longer. Buy a Syracuse and get a gear that is up to the minute in design and construction—and in price.

The Syracuse Gear includes clutch, reverse gear and rear starter, all combined in one compact all-enclosed case. Perfect lubrication, silent, clean and free from trouble, this gear will give you perfect service at minimum cost.

Sizes 10 H.P. to 100 H.P. Readily installed in any type of boat with any engine up to 100 H.P.

Catalog with revised prices on request. Write today.

SYRACUSE GEAR COMPANY
SYRACUSE, N. Y.



Conquering the Compass

(*Continued from page* 82)

To determine the amount of deviation, it is simply necessary to choose a number of courses whose direction can be determined from one's chart, and then put one's boat over these courses, and note the direction shown by the compass. For example, choose two points on the chart which are directly North and South of each other; that is, two lighthouses, buoys, headlands, or other points which can be readily distinguished. Put the boat over this course, and note the course which the compass shows. Perhaps it will be North by East. Make a note of this. Now turn the boat directly about, and she will be heading in a southerly direction. Again note what the compass shows, and set it down on paper. In this way pick out as many courses as possible, and put your boat over them, noting in each case what the compass shows, which will give you a deviation card.

Fig. 157 shows a number of such courses laid out from Government chart (No. 369, Long Island Sound) of Huntington Bay. On this bay there are several aids to navigation shown on the chart such as bell buoy, No. 13A, red and black spar off Eaton's Neck, can buoy No. 13, Eaton's Point Lighthouse, etc., etc. All of these aids are near enough to each other to permit their being seen from a boat in any position on the bay. Consequently, it is possible to lay off eight courses between them which with the reverse courses will give the motor boatman sixteen courses whose magnetic direction may be definitely determined from the chart as shown in Fig. 157. By putting the boat over each of these sixteen courses, and observing the direction as shown by compass on the boat, and then comparing these compass headings with the actual magnetic courses shown by the chart (Fig. 157) one can readily determine his compass deviation on the various headings.

Bearings on a Near Object

Fig. 155 represents a very convenient method of determining deviation by means of bearings on an object on shore. Fig. 156 illustrated a method of using a distant object which could be located on the chart, but Fig. 155 represents an object (*A*) close at hand on shore, such as a tree, stake or a mark specially placed.

The boat is anchored in a fixed position, preferably with several anchors out bow and stern, so that she will swing only as desired. The compass is then taken ashore, and a bearing taken from *A* to the boat. As there will be no deviation to the compass on shore, a correct magnetic bearing can be obtained from *A* to the anchored boat. Then with the compass in its correct position on the boat, a bearing is taken with it from the boat to the mark *A* on shore. The difference in the two bearings will be the deviation of the compass on that particular heading which the boat is then on. (That heading shown by the compass lubberline corrected for the amount of deviation just determined.)

For example, if the bearing from the mark *A* on shore to the boat (as indicated with the compass on shore) is W N W, then the correct magnetic bearing from the boat to *A* will be E S E. If the compass bearing from the boat to *A* (as indicated by the compass on the boat) is S E by E, then the deviation is 1 point westerly. As the lubberline is indicating N by E (I, Fig. 155) this, corrected for 1 point westerly deviation, shows the boat to be heading N (Magnetic).

The boat is then swung around a little (II, Fig. 155) and another compass bearing taken on *A*. Perhaps this bearing will be S E by E ½ E and as the magnetic bearing (E S E) has not changed then on this heading (N W) the compass will have a deviation of ½ point west. Swing the boat to another position (III, Fig. 155) and take a bearing on *A*. Perhaps this bearing will be E S E, which is the same as the magnetic bearing. Therefore on this heading (S W by W) the compass shows zero deviation. Proceed in the same way until the boat has been swung all around (360°) obtaining as many bearings on *A* as is convenient.

Reciprocal Bearings

Another method of determining compass deviation is by taking what are known as reciprocal bearings. This method calls for work of a more exacting nature than any of the foregoing methods, and while it is extremely serviceable for obtaining compass deviations on large boats and vessels, it is not altogether suitable for obtaining compass deviations for small boat use where it is impossible to obtain a compass bearing of an object on shore quickly, with accuracy. This method calls for placing an observer on shore with a compass, and another observer on board the boat at the boat's compass.

A system of prearranged signals must be worked out, so that at the instant a signal is given from the boat or by the observer on shore, such as the waving of a handkerchief or the dropping of a flag, a bearing will be taken from the

(*Continued on page* 104)

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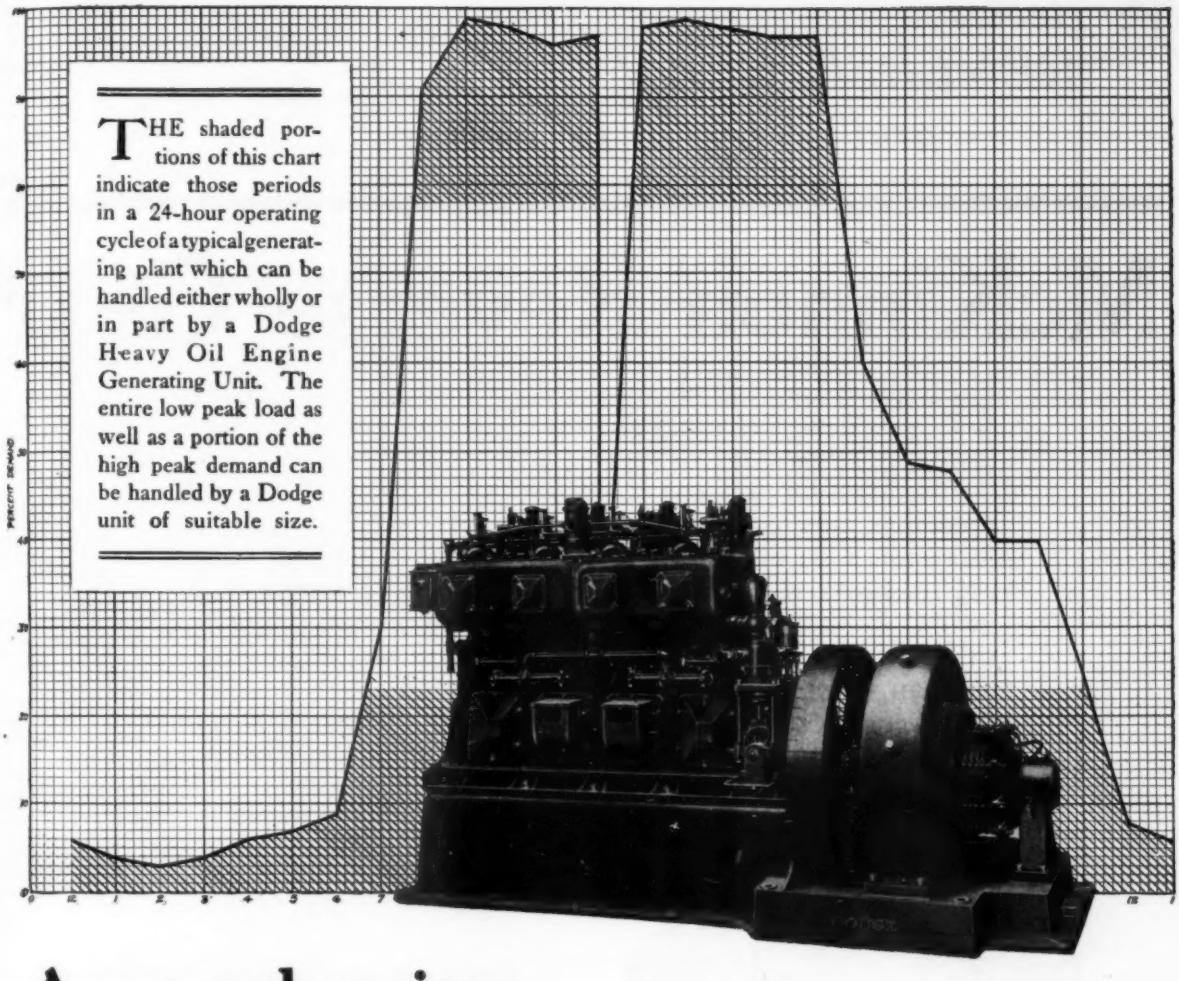

THE shaded portions of this chart indicate those periods in a 24-hour operating cycle of a typical generating plant which can be handled either wholly or in part by a Dodge Heavy Oil Engine Generating Unit. The entire low peak load as well as a portion of the high peak demand can be handled by a Dodge unit of suitable size.

A proved saving based on your own costs

The value of a Dodge Heavy Oil Engine Generating Unit as an auxiliary power plant in generating plants everywhere is not theoretical. Dodge engineers are able to demonstrate to you, using your own cost figures for a given period, a saving that you cannot afford to ignore that will follow the installation of a Dodge unit as an auxiliary in your plant.

Send us today data covering the operating cost of your plant for any given period under present conditions, high and low peak demands, etc. As quickly as possible we will respond with full information as to which of the five units listed to the right will serve you best and what it will save you in fuel, depreciation and personnel. A study of this information will astonish you with its revelation of how quickly a Dodge Heavy Oil Engine Generating Unit will pay for itself and begin paying dividends.

We will respond immediately to inquiries from accredited dealers desirous of handling Dodge Heavy Oil Engines in their localities.

Dodge Sales and Engineering Company

Mishawaka, Indiana, U. S. A.

Specifications of DODGE Heavy Oil Engine Generating Units

1 Cyl.—12½	H. P. . .	7½ K.W.
2 Cyl.—25	H. P. . .	15 K.W.
3 Cyl.—37½	H. P. . .	20 K.W.
4 Cyl.—50	H. P. . .	30 K.W.
6 Cyl.—75	H. P. . .	40 K.W.

All Dodge Heavy Oil Engines are sold under a standard fuel consumption guarantee of .5 lb. per brake horse-power hour at full load.

A Better
REVERSE GEAR
—and Why It Is Better

McKinnon Reverse Gear

HERE at last is something entirely new in marine reverse gear design that has already demonstrated itself superior to any other make or type of gear on the market.

The McKinnon Gear is simpler, stronger and more durable than any other type of gear. It contains just three large-tooth bevel gears which are always in mesh. There are no brake bands, sliding gears or small planetary spur gears. Both the forward and reverse drives are controlled by two big nine-plate multiple disc clutches. The whole mechanism operates in a bath of oil.

This gear gives the same speed ahead and astern. It can be instantly reversed at full speed. The clutches will slip enough to absorb any jar and protect the gears from sudden strains. The capacity of the clutches is so great that they may be intentionally slipped for considerable periods without overheating.

Write today for full data, together with report of test with Sprague electric dynamometer by Prof. Vose, of Case School of Applied Science, Cleveland. The McKinnon Gear has shown remarkable results in both laboratory and actual service tests.

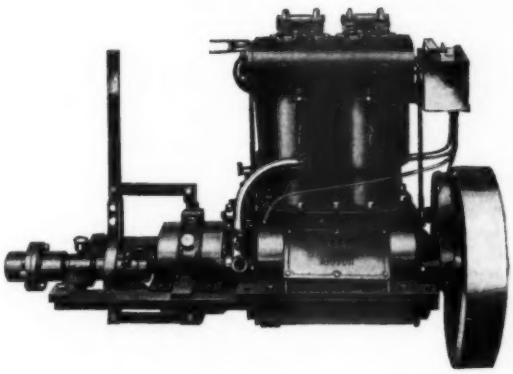
Four sizes ready for delivery.

No. 1 transmits 4 H.P. per 100 R. P. M. **No. 3 transmits 13 H.P. per 100 R. P. M.**
No. 2 transmits 8 H.P. per 100 R. P. M. **No. 4 transmits 20 H.P. per 100 R. P. M.**

Other sizes in construction.
Absolutely guaranteed for one year.

McKINNON IRON WORKS COMPANY
ESTABLISHED 1880
ASHTABULA OHIO

Advertising Index will be found on page 110



Frisbie
VALVE-IN-HEAD
MOTOR

10 Models, 1—6 Cylinders, 5—75 H.P.; All Four Cycle

"Always Ready with Never a Kick"

—says Mr. H. F. Loveland of Saybrook, Conn., in writing of the 10 H.P. Frisbie that pulls his 40-ft. trawl.

"I travel in all kinds of weather," he continues, "and if it hadn't been for my Frisbie the last time across the Sound, my chances would have been slim, as there was a bad sea running. But the Frisbie brought me home safely.

"My wife runs the Frisbie nearly as much as I do, and has not a bit of trouble. I can honestly say the 10 H.P. Frisbie cannot be beat for power and smooth running."

To any one who would like to know more about a motor that has the unqualified approval of workers and pleasure seekers alike, we will gladly send our catalog upon request.

Frisbie Motor Company
7 College Street
Middletown Conn.

Frisbie an' I

The
Commodore
Yacht Chair for Comfort

It Folds and averages 8" per chair for stowage

Opens 20" between arms. The comfort of the Commodore, the coolness and its convenient manner of stowing, make it almost a necessity for yachtsmen. Every boat should be equipped.

Yacht clubs, country clubs and smart homes also are buying Commodore chairs.

Staunch construction, brass fastenings, spar varnish—done up shipshape.

Retail Prices

Solid Mahogany, each....$10.75
Forest Green, each..... 8.00

Packed 6 per case—20% discount

Local salesmen wanted

ALBANY BOAT CORPORATION
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DEVOE
PAINT and VARNISH
Products

Devoe makes a paint or varnish for every fresh water or salt water boating need. Established 1754

Built by
LUDERS
The Last Word in Yacht Designing and Building
Luders Marine Construction Company
Stamford, Conn.

Conquering the Compass

(*Continued from page* 100)

boat to the observer's position on shore, and at the same instant a bearing will be taken by the observer on shore of the boat's position. The bearing by the shore compass, reversed, is the magnetic bearing of the shore station from the boat. The difference between this bearing and the bearing by the boat's compass represents the deviation.

A number of such observations should be taken from the boat to the shore, and the shore to the boat, with the boat on different headings. In this way the deviation of the compass on the various magnetic headings can be determined.

The Deviation Card

Fig. 154 shows another form of deviation card which is very convenient. The inner compass is magnetic, and the outer one represents the compass on your craft. Put your boat over a number of courses whose magnetic direction can be determined from the chart, and note the headings as indicated by the compass. Draw a line in each case on the above card from the point on the inner (magnetic) compass, representing the chart course, to the outer point which is indicated by your compass. Going over eight courses and the reverse of them will give you the deviation of your compass on sixteen different headings. You will then have a deviation card which will show the compass course which should be steered for any magnetic course.

The Sun Compass

If one does not look with favor upon the scheme of determining the deviation of his compass on various headings, then probably the next best method is that which employs a sun compass or shadow pelorus, as it is sometimes called. Any amateur without previous experience can determine the deviation of his compass within a quarter point with the sun compass. The sun compass is nothing more nor less than a reversed compass card, so mounted in a box that it can be turned around its center at will. At its center a hole is drilled, and a straight wire some three or four inches in length projects vertically upward. On the box a line *A*, corresponding to the lubberline of the magnetic compass is cut, and the sun compass is always so placed on the boat that the mark *A* will represent the bow of the boat either by being in line with the bow if the sun compass is in line with the keel of the boat, or else so that an imaginary line drawn through *A* and the center of the compass will be parallel to the keel of the boat.

After the sun compass has been placed as noted above, it is an easy matter to determine the heading of the boat. By comparing this heading with that heading as indicated by the boat's compass, the deviation can be read off directly. There is a small table which accompanies the sun compass that must be used with it in determining the deviation. This table tells one at what figure on the sun compass the line at *A* must be set for any time of the day. The sun shining on the sun compass causes a shadow to fall from the upright wire, and this shadow cuts a point indicating the heading of the vessel. For example, on May 1 at 10:20 A. M. at New York City the table will tell one to set the movable dial at 115. If the shadow from the wire then falls for example at S S E ⅜ E, this will be the true direction in which the boat is heading. Now, if the compass shows S by E at the same moment, and we have a variation of one point as shown by the chart, we know at once that our compass has an error due to deviation of ⅜ of one point.

Easterly and Westerly Deviation

When the north pole of your compass is swung to the right, or toward the East by the magnetic substance on the boat, the deviation is said to be easterly. When the north pole is swung to the left or to the West, we have a westerly deviation. Deviatior refers to the north point of the compass, and to no other point—which fact should be remembered by everyone.

Applying Deviation

The process of applying deviation to determine compass courses is one which the navigator must do for himself, and make himself a thorough master of. No course can be set or bearing plotted without the application of this problem, and a mistake in its solution may produce serious consequences. Rules as to the application of deviation are of little service. The motor boatman must practice and work them out for himself.

Compass courses and magnetic courses should not be confused. The former is that shown by the compass on your boat, and the magnetic or correct course is the one shown by the chart. To find a compass course when the deviation of your compass is westerly, the compass course which you should steer will be to the right of the magnetic or correct course. In other words, apply a westerly error to the right to find the compass course which should be steered. When the error of

(*Continued on page* 106)

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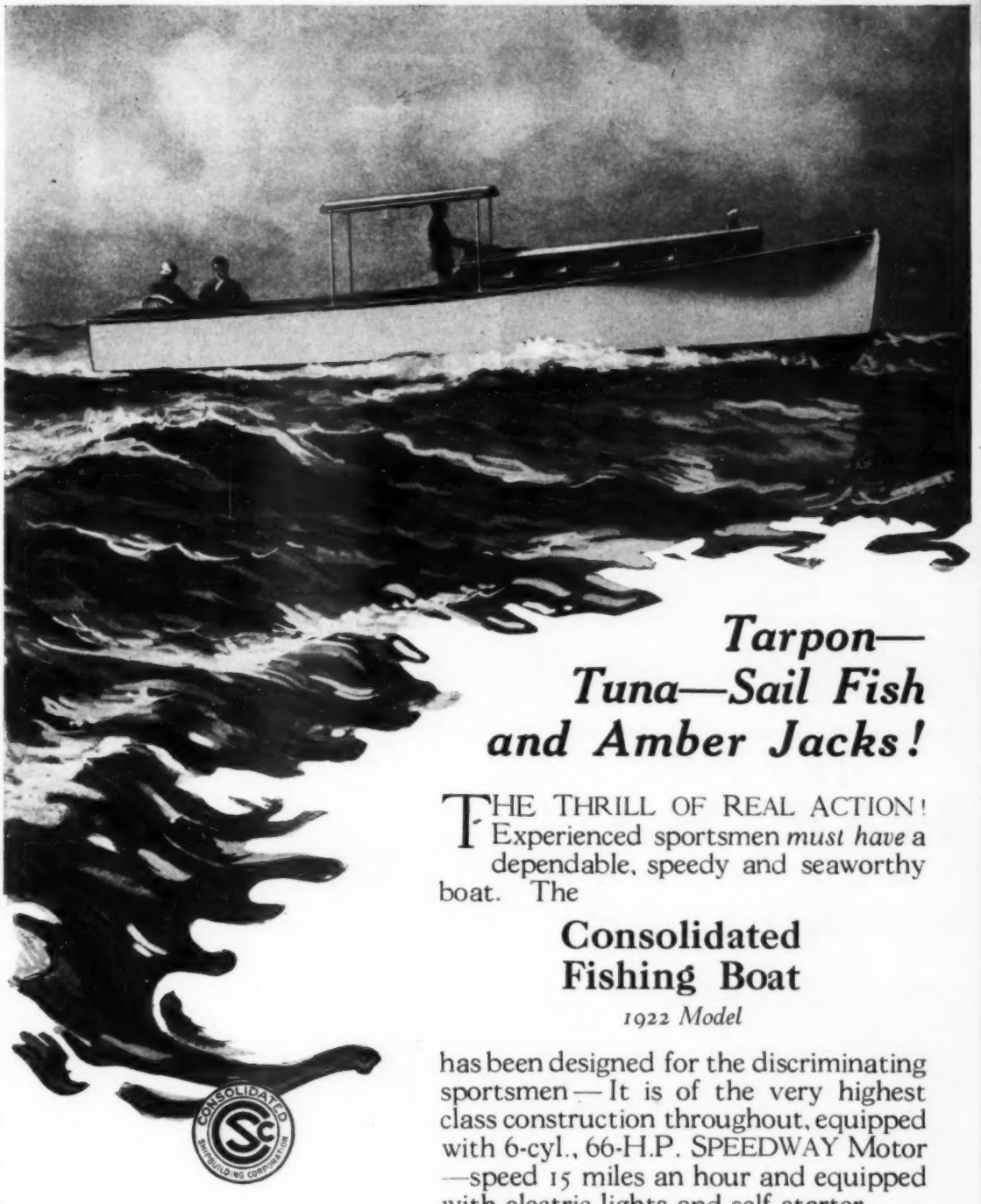


Tarpon—Tuna—Sail Fish and Amber Jacks!

THE THRILL OF REAL ACTION! Experienced sportsmen *must have* a dependable, speedy and seaworthy boat. The

Consolidated Fishing Boat

1922 Model

has been designed for the discriminating sportsmen—It is of the very highest class construction throughout, equipped with 6-cyl., 66-H.P. SPEEDWAY Motor—speed 15 miles an hour and equipped with electric lights and self starter.

Price $10,000

Orders taken now for winter delivery
Plans and Specifications on Request

CONSOLIDATED
SHIPBUILDING CORPORATION
MORRIS HEIGHTS, NEW YORK CITY

A hard slippery finish that lasts a long time and increases speed—each additional coat adds to efficiency. A powerful wood preservative and preventive of marine growth and destructive borers, it saves its first cost many times over by eliminating expensive repair, scraping and repainting work.

FOR TOPSIDES

Full and Semi Enamel Yacht White

Advice and consultation free on all painting and repair work

STEARNS-McKAY MFG. CO.
MARBLEHEAD MASS. USA

GENUINE
HARTHAN
TRUE SCREW
PROPELLERS

The principle of a True Screw is strictly followed out in the patterns from which all genuine Harthan Propellers are made. This type is known to be the most efficient.

Harthan wheels are made of a special bronze composition, very tough and strong. This allows a very thin blade, the edges of which are brought down very sharp, which, with the extra high polish, reduces the power-absorbing element to a minimum.

We can supply propellers with two or three blades, in practically any pitch, either right or left hand.

Look for the Trade-Mark on Each Blade

McFARLAND FOUNDRY & MACHINE COMPANY

1100 Willow St.,
TRENTON NEW JERSEY

Representatives

NEW YORK: Topping Bros., 122 Chambers Street.
PHILADELPHIA: F. Vandercherchen's Sons, 7 N. Water Street.

Conquering the Compass

(*Continued from page* 104)

your compass is easterly, the compass course which should be steered to allow for this easterly error, is to the left.

To find the magnetic, or true course from your compass, just the reverse of the above must be done; apply an easterly error to the right, and a westerly error to the left.

The navigator should always regard himself as facing the point under consideration from a position at the center of the compass when he applies an error.

To Find Compass Course

From the above it will be noted that when the error (variation, deviation, local attraction, or a combination of these) of your compass is westerly, then the compass course which you should steer will be to the right of the correct course (course on which it is desired to put the boat, found from the chart or sailing directions) or in other words apply a westerly error to the right to find the compass course which should be steered.

When the error of your compass (variation, deviation, local attraction, or a combination of these) is easterly, then the compass course to be steered by your compass to allow for this easterly error, will be to the left of the correct course which you wish to follow.

To Find Correct Course

The correct course or the direction which you really are going is to the right of the course shown by your compass, when same has an easterly error, and to the left of the course shown by your compass when its error is westerly.

The above is equally true when computing magnetic courses from true courses and vice versa, in which case, of course, deviation may be neglected.

When the compass card is arranged from 0° at North, around the card clockwise through the entire 360 degrees, the case becomes much simpler and is easy to memorize. In this case, when it is desired to change a true course into a magnetic course or compass course, or to change a magnetic to a compass course, the variation or deviation, as the case may be, should be *added* when same is *westerly* and when the error is *easterly* its amount should be *subtracted*.

When it is desired to change a compass course into either a magnetic or true course, *add* an *easterly* error and *subtract* a *westerly* error from the compass course, or when changing a magnetic course to a true course *add* an *easterly* variation and *subtract* a *westerly* deviation from the magnetic course given.

When the compass card is arranged in points instead of in degrees; to get the magnetic or compass course from the given true course when the variation and deviation are also given, imagine your own position at the center of the compass card and apply an *easterly* error to the *left* and a *westerly* error to the *right;* the term error meaning the algebraic sum of the amount of deviation and variation, if the case requires that both be used, or if not, then to the amount of either variation or deviation which must be taken into consideration.

To find correct course or the direction which the vessel is really heading when there is a compass error, apply the amount of the error to the *right,* if the error is *east,* and to the *left* if same is *westerly.*

Kinds of Courses

The three methods by which bearings or courses may be expressed are:

(a) *True,* when they refer to the North geographical pole.

(b) *Magnetic,* when they refer to the North magnetic pole. To change magnetic courses to true courses, the former must be corrected for variation.

(c) *Compass,* when they refer to the particular boat's compass on each particular heading and must be corrected for the deviation on that heading for conversion to the magnetic course and for both deviation and variation for conversion to true bearings or true courses.

Examples (See Figs. 152 and 153)

Example 1:
True Course: SW
Variation: 1 point W
Find: Magnetic Course
Answer: SW x W

Example 2:
True Course: SW
Variation: 1 point W
Deviation: ½ point E
Find: Compass Course
Answer: SW ½ W

Example 3:
Magnetic Course: NW
Deviation: 1 point W
Find: Compass Course
Answer: NW x W

Example 4:
Compass Course: SE
Deviation: ½ point E
Find: Magnetic Course
Answer: SE ½ S

Example 5:
Compass Course: SE
Deviation: ½ point E
Variation: 1 point West
Find: True Course
Answer: SE ½ E

Example 6:
Magnetic Course: NE
Variation: ½ point W
Find: True Course
Answer: NE ½ N

Advertising Index will be found on page 110

DIESEL ENGINES for PLEASURE YACHTS

IDEALIA, 84′ x 14′ x 3′, is powered with a 120 H.P. NELSECO Diesel engine which drives her 14¼ miles per hour, using only six gallons of fuel oil per hour. It would take 15 gallons of gasoline to produce the same power, *at approximately ten times the cost.*

Everyone concedes the advantages of Diesel engines for commercial boats. The case of Idealia and other successful installations prove that NELSECO engines are equally suitable for substantial pleasure yachts and large cruisers.

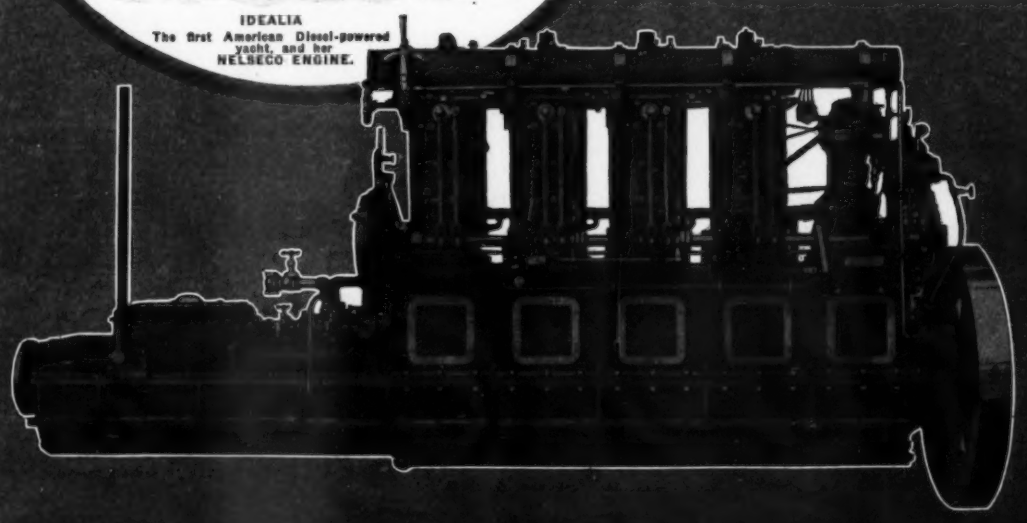
The broad experience of this company, the first to build a Diesel Engine in America for marine use, is at the disposal of those who are interested in investigating or planning a Diesel powered boat. Our engineers will take pleasure in working out your power problem if you will put it up to them. 120 B.H.P. to 3400 I.H.P.—over 150,000 B.H.P. in use or on order.

Let us send you complete information.
Give us the details of your boat.

THE NEW LONDON SHIP & ENGINE COMPANY
Groton, Conn., U. S. A.

Pacific Coast Office: 402 Exposition Bldg., San Francisco, Calif.

IDEALIA
The first American Diesel-powered yacht, and her NELSECO ENGINE.



50 Ft. of Cruising Comfort in a 36 Ft. Boat

THE structural perfection of the Burger 36 Ft. Cruiser accounts, in a measure, for its marked seaworthiness and cruisability. But more than this—it represents the results of skillful and authoritative designing ability which is so pleasingly revealed in comforts and conveniences identified only with larger and more expensive boats.

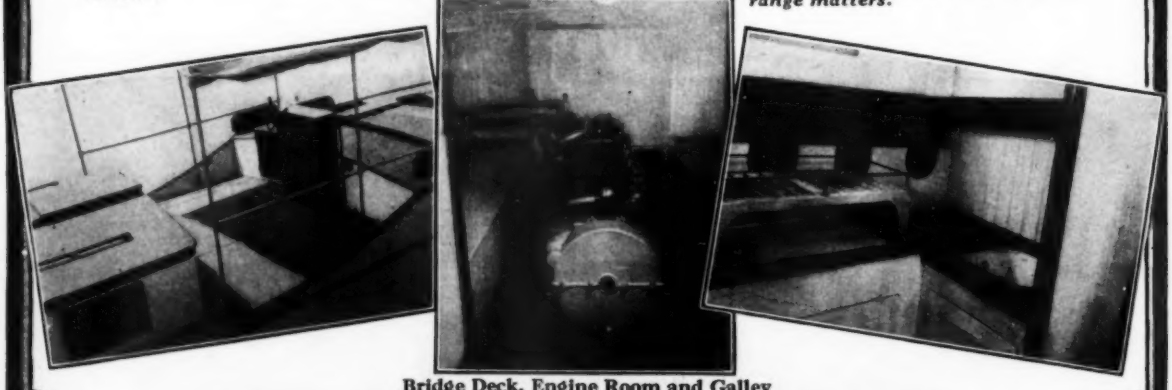
And yet with its cozy interior and roomy cabins, the charming symmetry of the hull and balanced arrangement of the deck cannot fail to create well-deserved admiration and an enthusiastic desire for ownership.

A bridge deck large enough for all; fore and aft cabins for lounging or sleeping quarters or dining-room; a well-equipped galley; an engine room with two bunks and workbench; two toilets; every detail correct—do you wonder now why Burger owners are proud of their 50 ft. cruisers only 36 ft. long?

BURGER BOAT COMPANY, MANITOWOC, WIS.

Write for our illustrated book containing photographs and specifications.

The Burger Boat may be inspected in New York waters on appointment. Write us and we will be glad to arrange matters.



Bridge Deck, Engine Room and Galley

BURGER BOATS BEAUTIFUL

Immediate deliveries from stock. Price without war tax, $4950.00 delivered at Manitowoc, Wis.

We also build a 26 ft. Runabout, designed by John L. Hacker. Speed 25 miles. Complete details on request.

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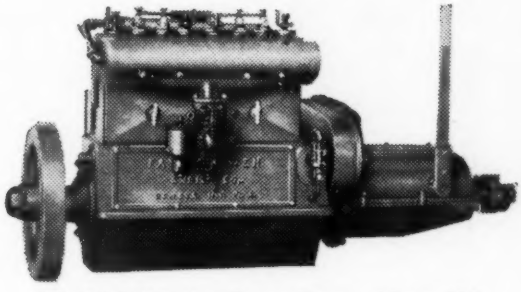
20 Continuous Years of Successful Engine Building Behind Every One of Them



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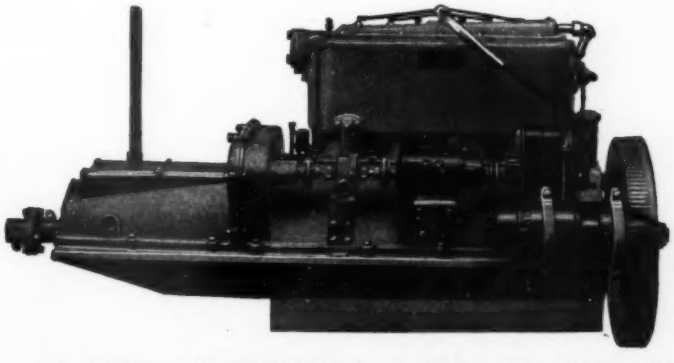

Fay & Bowen Model LN-42, four-cylinder, 4¼ x 5½, with electric starter

FAY & BOWEN ENGINE COMPANY

104 LAKE STREET, GENEVA, N. Y., U. S. A.

NEW YORK: 44 Third Ave. at 10th St., Sutter Bros., Representatives
PHILADELPHIA: 116 Walnut St., Marine Equipment & Supply Co., Representatives
BOSTON: 84 Atlantic Ave., Gray-Aldrich Co., Representatives

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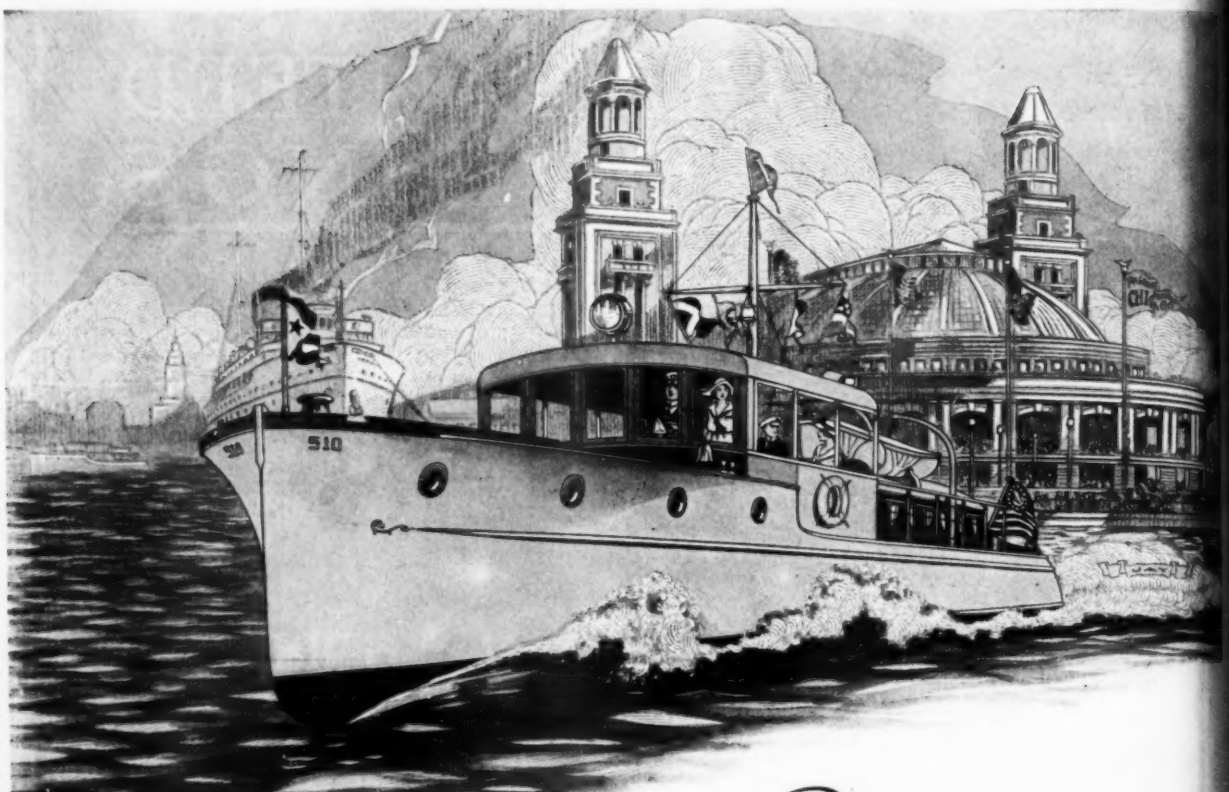

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GM—4¼ x 5½ .....6 cylinder
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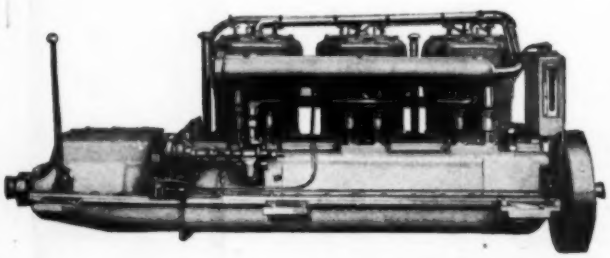

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